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The Non-Verbal Blind Child:
Two Paths to Speech

Sally Rogow

Doug Guess, Gorin Rutherford, Alice Twichell

The Long Cane in Great Britain

Robert J. Crouse

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The Non-Verbal Blind Child: Two Paths to Speech

The blind child with multiple handicaps has, unfortunately, become much more common within the past few years. The following two papers are of particular interest to persons working with blind children who are retarded in development because they illustrate a problem frequently observed in these children—lack of verbal communication—and describe different types of successful therapy.

Certain aspects of these reports are similar: both children have at one time lived away from their natural homes. Both are reported as having receptive language, but not expressive speech. Both made admirable progress in less than one year of treatment. Difference will be noted in the ages of the children at the time they began treatment; one was nine years old, the other 16. But the major difference seems to be in the techniques used: in one case, a direct educational approach in a warm accepting environment, and in the other, a carefully planned program of speech therapy. Both brought dividends!

The progress of these children from persons of non-verbal communication to persons who can initiate speech and respond verbally after a comparatively short period of treatment must alert professional people to the necessity of offering therapy, even when the chances for improvement might be regarded by some as slight. These papers signal the necessity for not accepting the non-verbal status of a child as irreversible, particularly one in an institution for retarded children, but allowing every child an opportunity to respond to therapy in as far as he is capable.—Pauline Moor, Specialist in Education, The American Foundation for the Blind.

The Non-Verbal Blind Child

The blind child who makes only the most tentative effort to achieve "personality," to master the skills that engage him in living, presents a tragic dilemma to his family and his teachers. Self-absorbed and non-communicating, this child is often diagnosed as severely disturbed or retarded. In many respects his speech and social behavior is similar to the autistic child as described by Kanner (Kanner, 1949).

Kanner noted echolalia and the failure to use language to convey meaning in the speech of autistic children (Kanner, 1949). Cunningham and Dixon report an unevenness in language development when speech is present in the

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autistic child (Cunningham and Dixon, 1949). Wing confirms previous findings, noting that "speech may begin and then be lost" (Wing, 1966). Speech may not occur until the child is five years or older, and then "progress is slow and there are many peculiarities" (Wing, 1966).

The blind child who is noticeably "lacking in muscle tone," having "a pose of unawareness of and indifference to people," a "tenseness suggestive of a spastic condition," an "awkwardness in gross mobility combined with fine motor dexterity," and "an unusual rote memory and high capacity for recall" (Moor, 1961), is aptly described by Bettelheim when he describes the individual who does not interact with his environment.

"He does not act on his 'natural' tendencies and interests, or the realities of the environment, but for all practical purposes is motivated only by anxiety. He has withdrawn cathexis from his environment but not from his inner psychic processes though even those are undercathected." (Bettelheim, 1967).

□ The blind child without language is severely cut off from receiving and sending information and the longer his language development is delayed the deeper his isolation. The failure to use language to convey meaning, echolalia, and the insistence upon sameness are as depriving as they are symptomatic of the poor communication that exists between the child and his world. The child is both prisoner and engineer of his isolation.

Language as it is used by the child offers many clues into interpersonal relationships because speech patterns are externally determined (Goldfarb, Braunstein, and Scholl, 1959). The understimulated child who appears disinterested in his world lacks the motivation for meaningful verbal expression. His relationships with his family have not demanded his participation and the child is bereft of a sense of "self-ness."

□ The following study of a nine-year-old congenitally blind girl has been made with particular reference to her use of language as it developed over a six-month period. The background material has been furnished by the social workers who have worked with her over the past seven years. Records of Jeanine's conversations have been kept by the writer in the course of daily one-hour sessions. The purpose of these sessions was to teach Jeanine reading and writing braille. Jeanine and I worked alone in a small room on the opposite side of the small building which houses the Simon Fraser Special Education Centre. The hour Jeanine spends with me is her first activity of the morning. When I leave Jeanine, she goes back to a classroom where there are seven other children with a variety of emotional and learning problems. Jeanine is the only blind child and the oldest of the group whose age range is between six and nine years. The classroom teacher maintains a warmly supportive and comfortable classroom environment. The teacher is assisted by another teacher and two student teachers and the children are instructed individually. This study was begun in September 1967. In recent months a dramatic change has occurred in Jeanine's behavior. Her teacher noted (with some relief) that Jeanine is now receptive to suggestions. She will still "sit and do nothing," but now, when

Lack of Language Isolates the Blind Child

The Method of Therapy

her teacher initiates an activity, Jeanine will participate with the other children. Her catalogue of experiences is growing along with new confidence in an ability "to do things."

Along with her increased awareness of the world around her, Jeanine is beginning to develop verbal facility. It must be noted that the changes in Jeanine's behavior cannot be related to any one therapy or treatment. The change in total living pattern beginning with the supportive but gently demanding life style of her foster family, and the safety of a classroom specifically geared to provide "success" experiences has provided this terribly deprived child with sufficient stimulation and self-confidence to lure her out of isolation. The achievements Jeanine has made in language development and reading would not have been possible were the daily sessions simply an isolated activity, and had no other change been made in her life.

□ Jeanine celebrated her tenth birthday in December 1967. She was the first child of a very young newly married couple. Her blindness was caused by an atrophy of the optic nerve due to an unknown cause. Nothing unusual is reported about her general health except an early feeding problem and eye-rolling. When she was 15 months old, she is reported to have had a very high fever followed by drowsiness and vomiting. Jeanine was first seen by a social worker of the Canadian National Institute for the Blind when she was 20 months old. The social worker noted that she seemed friendly to adults and was making an effort to walk alone.

Jeanine greeted the birth of her baby sister with apparent disinterest, and when seen at that time she was able to parrot conversation. At two years and three months, Jeanine was walking alone and feeding herself. But when the social worker returned for a visit six months later, she was refusing to do anything for herself and had stopped talking (social worker's report, August, 1960).

Jeanine "whined, cried, and clawed her mother all through the interview." The social worker noted that Jeanine's harassed mother seemed to wait on her "hand and foot, letting her gain attention by crying and whining." It was also reported that the father was critical of his wife's handling of Jeanine and that there were frequent family quarrels.

When a physician told Jeanine's parents that he suspected progressive brain disease, the parents gave up their sporadic efforts to teach the little girl. This suspicion was never confirmed by tests other than one reading of an EEG, nor did the physician confirm his diagnosis. It seems now, six years after that examination, that the suspicions were unfounded. After the physician told the parents of his suspicions, the mother wrote to the social worker, "She (Jeanine) is retarded now. All she does is cry and scream all the time. There is no calming her anymore."

Jeanine's parents wanted to put her in a public institution for the retarded, but the school's assessment was that she functioned at too high an intellectual level. After the 30-day assessment period at the institution, Jeanine seemed to be more manageable. She responded to the play initiated by her parents and could play "paddy cake" as long as her hands were held for her. When no one

Change not due to any one thing

The Subject

Behavior problems

Various schools and institutions tried

was with her, Jeanine sat with her hands folded or turned in circles. Her parents made no demands on her and even her younger sister was expected to wait on her. The social worker observed Jeanine at play, noting how absorbed she was in running around the yard or turning in circles (July, 1962).

In September 1963, Jeanine was enrolled in a kindergarten for retarded children, where her teacher, a motherly middle-aged woman, tolerated her constant screaming for three months. After that, her behavior improved, but the teacher observed that she "did not relate to people in words" (March, 1963). She played with toys only when they were put into her hands, and never initiated activity nor play with the other children. Her favorite activity was riding a tricycle around the room.

In the two years she spent at the kindergarten, Jeanine learned to answer simple questions, recite nursery rhymes, and say "good-bye" (June, 1963).

The next year Jeanine was enrolled at another school for severely retarded children, where her teacher noted her extreme agitation when her demands were not immediately met (November, 1964). Six months later her teacher was describing her as "the happiest child in the class." The social worker also felt that Jeanine was becoming "sociable." The fact that Jeanine's classmates were equally nonverbal should be noted. There was little verbal interaction between these children.

□ When Jeanine's parents decided to move, they placed her with a family (who have since become her foster family) with whom she is able to make great progress. In this new home, where there are four other children, Jeanine is expected to do things for herself. For the first time she dressed herself and "speeded up her actions." "I do not like you," Jeanine told E. (the mother of the family) expressing her feelings in words.

Her parents moved four blocks away and Jeanine was given travel instructions so she could visit them. She learned how to use a white cane quickly and lost her "vague retarded look." Her mastery of cane travel won not only her mother's praise, but made a noticeable difference in her self-confidence.

In the fall of 1965, Jeanine was enrolled at the school for the blind and her parents moved back to their home. She was a boarding student and an older girl in the dorm treated her like a "baby sister," looking after her needs and even dressing her. The gains Jeanine made seemed to vanish and the school authorities informed the parents that they would not accept her the following year. They did not feel that she was ready for a grade one class.

Back home with her family, Jeanine's progress again came to a standstill. Family quarrels had become intense and her parents decided to separate. Jeanine was placed in the care of her foster family and enrolled at the Simon Fraser Special Education Centre. Her foster mother described her as "being very introverted and determined to stay that way" (September, 1967).

When I saw Jeanine at the doorway of the school, she was fiercely biting her arm. In the classroom, she did not use her hands to explore her surroundings. She seemed content to sit passively in a seat, twiddling a block in her hand or biting her arm. When an activity was suggested, Jeanine refused. If her teacher was insistent, she screamed in protest. She seemed determined to avoid frus-

Placement in Foster Home—
a Positive Step

Subject learned cane travel quickly

tration. Until the routine of the school day was established, she continually demanded to "eat lunch" (September, 1967).

□ Jeanine's understanding of spoken language was indicated by the precision with which she was able to follow directions. Her understanding of verbal concepts is verified by the way she is learning to spell and to read. She can now read simple words and sentences. Jeanine's behavior is reminiscent of a motor which has lacked fuel for so long that it must be oiled, primed, and fueled, again and again, before it will work on its own.

Language Behavior

Samples of Remarks Made Spontaneously:

"I don't want to sleep at E's house."

"I don't like E., I want to live with mommy."

"I want to snore."

"I want my snack."

"I will not slam the door."

"I can't stop moaning and groaning." (spoken while she wanted to resist playing a game.)

"I won't talk silly."

"E. loves me."

"You love me."

"I won't bite Moochy." (her parents' dog)

"I better not bite Moochy."

Comment: The remarks made spontaneously reflect Jeanine's personal concerns. She does miss her mother and indicates resentment of the fact that she is expected "to do things" in her present home. These remarks also reflect things that other people have told her. Shutting the door is something over which Jeanine has fought her foster mother. Putting socks on in the morning has also been an area of conflict. "Silly talk" is Jeanine's description of verbal play, which she enjoys. "Darn, darn, darn" is a phrase which she especially enjoys repeating.

There has been a change in the content of Jeanine's spontaneous conversation in recent months. Now there is more talk of people and verbal expression of feeling.

Changes in conversation noted

"My mom makes me angry."

"I'm mad at my mom."

"It makes my mom angry if I go whu, whu, whu. I'm a blubber puss.

I'm not a blubber puss."

While the change is in the direction of more content and the verbal expression of feeling, Jeanine still needs encouragement in the form of prompting and questions to talk. The fact that she is beginning to talk about angry feelings suggests how much anger is a part of her pattern of response. A child who feels herself to be helpless can hardly be expected to cope with her own intense feelings.

Response to Questions (questions asked by the writer)

"What did you do this morning?"

"I got up."

"What did you eat for breakfast?"

"Toast."

"Who is wonderful?"

"Me. I am."

"What did you do after school?"

"I don't know."

"Did you ride on your bicycle?"

"Yes."

"What did you do with Mrs. Rogow?" (question asked by home room teacher)

"I did my a,b,c's."

"Where did you go on Saturday?"

"I don't know."

"Did you go shopping?"

"Yes."

"I think you went to Supervalue."

"No, I went to Safeways."

"Did you push the shopping cart?"

"No, I pushed the buggy." (It is interesting to note that she insists on using the word for the same object. She refuses to substitute one word for another with the same meaning.)

"What would you do if I ate your snack?"

"I don't know."

"Wouldn't you say, 'Mrs. Rogow, stop eating my snack!?' "

"Mrs. Rogow, stop eating my snack." (laughing)

(When this question was repeated in front of the home room teacher, Jeanine replied, "I don't know.")

Comment: Jeanine's answers to questions are stereotyped and repetitive. The same question almost invariably gets the same response. If the question has not been asked previously, she will say "I don't know." But when she is reminded that she does know the answer, she will provide the answer. The only question I have heard Jeanine ask is "Why?" This is usually said when a new activity is introduced, or a new story presented to her. She will often answer the question "Why?" with the word "because," as if this word were an answer in itself. It is noteworthy that Jeanine has been saying "Why?" less frequently, as she is finding other words to use instead. It is also true that she is enjoying reading more and is no longer interested in "delaying tactics."

□ Jeanine repeats directions out loud, as if they were part of an activity like jumping or hopping. The word "jump" accompanies a jump, "hop" a hop, etc. . . . Words to be spelled are always repeated with the same inflection that the writer has used. The same is true for the short poems we read together.

Jeanine will also repeat a word or a phrase which amuses her. "I won't bog Jeanine down," or "darn, darn, darn." When she was reading "hamburger buns," I asked if the words spelled "bamburger buns" or "burgershammers buns" and she replied laughing, "No, it is hamburger buns."

Evidence of progress can be seen in Jeanine's use of language. She speaks more frequently in whole sentences and thinks with words. One morning when Jeanine was protesting having to read something, she suddenly stopped and

Repetition

Evidence of progress in child's use of language

said, "Don't be angry, Mrs. Rogow." It was as if she suddenly connected her own behavior with another's possible response. The phrase "Don't be angry" is one Jeanine has used with her foster mother and it has had the effect of avoiding a "scolding."

Her foster mother reports that as Jeanine was going up the stairs to bed, she found the baby boy on the stairs and shouted to him to "get downstairs." The foster parents were delighted because this was the first time that Jeanine had taken notice of the baby.

Recently Jeanine has begun to volunteer words for rhymes. "Jeanine, Jeanine, are you able to take your elbows off the table." With encouragement, Jeanine has substituted, head, back, legs, and jeans for "elbows."

Comment: The stability and consistency which Jeanine is experiencing in her foster home, the interest and affection of her foster parents, the warmth and encouragement of her teacher, and the experience of "success" have begun to thaw Jeanine's considerable abilities. Curiosity is slowly being aroused and is reflected in her more frequent random comments, which are becoming much less stereotyped and more interesting.

Jeanine's spoken language is reminiscent of the language of a very young child. It is most marked by its lack of content and affect, which seem to be slowly developing.

□ Jeanine's linguistic abilities range from her ease at naming objects, enjoyment of sound, ability to spell (involving the arrangement of sound and letter in appropriate sequence), to an ability to follow directions and an excellent memory for the words of songs and nursery rhymes. It is her ability to use words as bridges to people where the greatest deficiency lies.

In her relationships with her family, Jeanine has always been the victim of other people's decisions. "I can't do it" portrays the image Jeanine had of herself. Reluctance to surrender this image is probably rooted in the fear that attention will be withdrawn. As she is learning that praise and notice accompany her achievements, active participation is becoming something that she desires. Language reflects social growth and verbal expression develops when children perceive pleasure in reaching out to the world of people.

Jeanine's story is another dramatic example of the danger of understimulation and the curious process of deprivation to which a blind child can so easily become prey.

Noticing the world around her

Greatest Deficiency-using Words as Bridges To People

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Speech Acquisition in a Mute, Visually Impaired Adolescent

A number of studies have reported the use of behavior modification procedures and techniques to develop verbal behavior in deviant children. Such reports are described for speech deficient (Salzinger, Feldman, Cowan, & Salzinger, 1965; Cook and Adams, 1966); mentally retarded (Bricker & Bricker, 1966; Baer, Peterson, & Sherman, 1967); and autistic children (Lovaas, 1967; Wolf, Risley, & Mees, 1964; Hewett, 1965).

The case reported here describes an intensive speech development program with a severely retarded, mute adolescent boy. Several aspects of this study are especially relevant to language development. First is the relatively late chronological age at which the subject started to talk; second, the rapid rate at which he developed the use of speech; third, the rather atypical social and behavioral history of this boy which, in combination with a severe visual defect, produces important theoretical as well as practical implications for severe language delay.

□ Roy is a 16-year-old boy who, at the time of this study, had been institutionalized for about one-and-one-half years. He has a severe visual defect and is physically underdeveloped. Intellectually, Roy has been diagnosed as severely retarded. He comes from an impoverished family in which his mother has been described as "psychotic" and his two older brothers considered to be mentally retarded. His father died when Roy was about seven years old. His mother could do little for him and his care was left primarily to his brothers. Roy was institutionalized because he presented a severe behavioral problem. His violent aggressive behavior and "animal-like actions" were considered dangerous both to his family and to other community members.

Roy's developmental history is quite incomplete due to his mother's inadequate personality and low mentality. However, it is reported that he tried to say a few words up to the time of his father's death. Following this, he remained mute except for several instances in which he reportedly "growled" at neighborhood children. Roy neither vocalized nor verbalized after his institutionalization. When first seen by the present investigators, Roy was in a special class for visually handicapped, retarded children. In this class, he was able to perform limited educational tasks. He was cooperative and followed simple commands quite well. Roy responded to simple questions by shaking his head, but used hand gestures minimally.

□ The subject could imitate simple motor commands upon request. He would not, however, attempt to imitate vocal or verbal stimuli. The first phase was therefore directed toward producing some vocal behavior. Four 15-minute

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The Subject

Developmental history incomplete

Programming

sessions were held in which Roy was merely given verbal commands to make sounds. No vocal responses occurred in these sessions. At the fifth session, a 100-chip formboard was presented to him. He was told that for each sound he made he would receive one chip and for each row of 10 chips filled he would receive a penny. The money could be spent at the canteen following the session. Roy produced 130 vocal sounds during this session. The following three sessions he emitted 180, 198, and 190 vocalizations respectively. All of these vocalizations were the nasal consonant sounds /m/ and /n/. Their intensity was low.

Having attained a fairly high rate of vocal responses from Roy, the next phase was directed toward shaping a variety of phonemes. Although the subject could produce the consonant /m/ and /n/ sounds, he was unable to adequately produce vowel or other consonant sounds. During this and subsequent phases, Roy was seen five days a week in 30 to 60-minute sessions. Chips and pennies were used throughout to reinforce his verbal responses.

During this phase Roy was required to imitate basic vowel, consonant, and vowel-consonant combinations. At the start he was given only four sounds a day. Each sound unit was usually presented in blocks of 10 to 20 trials. Records were kept on the number of responses which matched or approximated the stimulus sound presented. A percentage of effectiveness for each sound was computed by dividing the number of total responses given into the number of correct responses. For example, if he had to produce 30 responses to get 20 correct he would have reached 67 percent effectiveness for that sound. A criterion of 90 percent effectiveness was required for each sound. This procedure allowed the investigators to continually assess Roy's language development. When a vowel or consonant was mastered during one session, a new one was programmed for the next session. Often, a sound which met criterion at one session was repeated in later sessions to test for stability. As Roy progressed, the number of sounds presented each day was increased. At several sessions, diphthong and vowel sounds were alternated with initial consonant units. For example, Roy was given the following consonant-vowel sequences— /ko/ - /kai/ - /ka/. This alternation procedure allowed him to make finer discriminations between various sounds. It was observed that he could often produce sounds more accurately when they were combined in these syllables. For example, Roy was able to produce the diphthong /āi/ when combined with a consonant, but could not produce this sound in isolation. Some sounds came rather quickly while others had to be presented across many sessions. Sessions nine through 30 were devoted to shaping a variety of vowel, consonant, and vowel-consonant combinations.

Simple words were introduced to Roy at the beginning of the third phase. These words were represented by 7" x 9" picture cards taken from the *Peabody Language Development Kit* (Dunn & Smith, 1965).

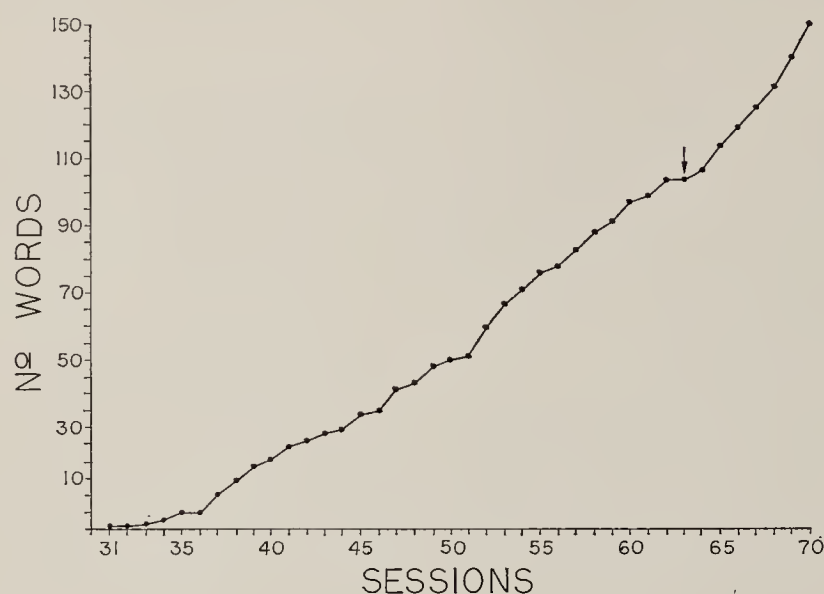
□ They were primarily nouns, with some adjectives and action verbs. Except for sessions 31 and 32 (five words each session) Roy was programmed for 10 words per day. Each word was presented 10 times consecutively. Two 10-trial blocks were presented for each word during a session. The scoring procedure

Shaping phonemes

Imitating combination sounds

Introduction of Words

described in Phase II was used. Single words were presented from session 31 through session 70. Figure I presents the number of words per session in which he met the 90 percent effective criterion. As can be seen from this graph, his acquisition curve is positively accelerated indicating that as time progressed he could more easily generalize to new words.



□ At session 42, a new dimension was added, the use of the "Language Master".¹ During these additional one-half hour sessions Roy worked on those words which he had previously mastered during regular sessions. After learning to use the Language Master, he was handed the cards for that day and allowed to use the machine independently. These exercises served to strengthen those words learned earlier and gave him an additional opportunity to verbalize. He appeared to enjoy these sessions, and responded exceedingly well to the verbal stimuli contained on the tapes.

Simple phrases (e.g. "the red ball") and sentences (e.g. "My name is Roy") were programmed for sessions 71 through 86. He showed a remarkable ability to respond to these more complex and lengthy stimuli. His acquisition rate during these sessions was similar to the final sessions in Phase III using single words. At this point, Roy had mastered the necessary articulation skills to formulate and repeat most new verbal stimuli presented. However, several problems persisted in terms of his voice quality, rate, and intensity. At the onset, Roy's voice had an aphonic quality. As sessions progressed a breathy quality emerged in conjunction with an observable tenseness in his neck muscles. More will be said concerning this later. Roy also had a tendency to draw out or prolong words. This was especially noticeable with words ending

Use of "Language Master" Introduced

Several problems persisted

1. The "Language Master" is an audio-visual training instructional device manufactured by Bell and Howell Co. Magnetic tapes are attached to cards which can be inserted in the machine. Pre-recorded words, phrases, and sentences are reproduced from these tapes. Roy was merely instructed to repeat what he heard on the cards.

in sounds other than stop-plosives. Finally, Roy's voice intensity, although improving, remained low. Sessions 87 through 96 were directed towards raising his voice intensity. During these sessions Roy was required to repeat sentences while a therapist sat across the room from him, approximately 15 feet away. He was given a chip only if the therapist could clearly hear what he was saying. Background noise (a tape recording of sounds in the canteen) was used in sessions 92 through 96. Now, the therapist across the room had to be able to hear Roy over the background noise. Tape recorded probes of Roy's voice intensity, prior to and following these procedures indicated a substantial increase in voice intensity. During Phase IV, Roy was provided with short phrases and sentences to repeat on the "Language Master".

Through session 96, Roy's programming consisted primarily of echoic behavior in which he was required to match verbal stimuli presented to him. The remaining part of the program was directed toward bringing his verbal behavior more under the control of objects and events in his environment and to encourage speech initiated to others. Sessions 97 and 98 were aimed at the concept of spatial relationships and the use of prepositions. The procedure used is similar to the one described by Lovas (1967) in his work with autistic children. The subject was required to describe the relationship between two objects (ball and box; block and cup) using the following prepositions, "on top of," "under," "beside," "in back of," and "in front of." These relationships were presented in both question and command form in blocks of five. Roy rapidly met 100 percent success on these tasks.

□ At this point, his program was shifted to the classroom where his regular teacher is continuing to develop self-initiated speech. Again, the procedures she used follow closely those described by Lovaas (1967). Initially, Roy was presented with objects and requested to ask for each object ("I want the —") as they were placed before him. In other exercises he was to follow simple commands from the teacher and then tell her the commands to follow. These and similar exercises will be continued as a regular part of his special education classes.

□ In less than 10 months of extensive speech training, Roy progressed from muteness to a stage of verbal development characterized by the use of simple phrases and sentences. He will answer questions put to him, initiate verbal greeting, and, when requested, describe objects and events around him. Spontaneous speech is still minimal although there is some progress. For example, he recently approached a ward attendant and stated "I want a shower." Roy's speech is easily understood. To further his speech growth, Roy is in a language development program with four other children having rudimentary language skills. Lessons center around various facets of psycholinguistic functioning. In preparation for this class, Roy was administered the *Illinois Test of Psycholinguistic Abilities* (Kirk & McCarthy, 1961) and the *Stanford Binet Intelligence Scale* (Form L-M). On the ITPA he received a total language age of three years four months. Separate subtest language ages were as follows: Auditory Vocal Automatic (2-9); Visual Decoding (4-9); Motor Encoding (Below Norms); Auditory-Vocal Association (3-6); Visual-Motor Sequencing (4-4);

Speech initiated to others

Program Shifted to Classroom

Present Status of the Subject

Vocal Encoding (2-7); Auditory-Vocal Sequencing (6-3); Visual-Motor Association (Below Norms); and Auditory Decoding (2-9). Roy obtained an I.Q. score of 27 and a mental age level of four—three years on the *Stanford Binet Scale*.

Recently, the Photo Articulation Test (Pendergast, *et. al.*, 1965) was administered to Roy. This instrument consists of 76 pictures to test sounds in the initial, medial, and final positions. Five final and three medial sounds were omitted by Roy. Except for an /l/ sound in the medial position, all the omissions were fricative. Of 11 minor distortions, all were fricative or affricative sounds. Substitutions were recorded for blends where only one sound was produced for the blends. Other substitutions included the following sounds: /s/ for /ts/ in the initial and medial positions only; /t/ for /d/ in the medial position; /f/ for the voiceless /θ/ (e.g. teef for teeth); and /w/ for the /~ / in the initial position only.

During the program Roy exhibited episodic aggressive behaviors in which he attacked children and attendant personnel. His speech program has been continued even though he was heavily sedated at times. He has never been a behavior problem during speech sessions and his verbal behavior has continued to improve in spite of the recurrent aggressive outbursts.

Previous reference was made to the unusual quality of Roy's voice. Concern was expressed that he may have partially paralyzed vocal cords or other impairment to his peripheral speech mechanism. Considering this possibility, he was given a laryngeal examination. The physician found nothing wrong with these mechanisms and attributed his unusual voice quality to lack of use.

□ This study has described a procedure for developing speech in a mute, severely retarded adolescent boy with a severe visual defect and a history of aggressive behavior. The program outlined for Roy does not significantly deviate from procedures used by other investigators. The important aspect of this case is the rapidity with which this multiply-handicapped boy developed the use of speech. Although it is reported that Roy had at one time attempted to say a few words, this case is not one of reinstating speech. The fact that initially he could not produce even some of the most elemental sounds supports this contention.

Why this severely retarded boy progressed in speech development so rapidly is a matter of conjecture. Roy does possess several important attributes, which may have contributed significantly to his progress. He has a keen ability to make auditory discriminations among sounds and correct himself when his sound production fails to match that presented by the model. On many occasions when Roy was required to imitate the verbal stimulus of the investigator, he would emit a wrong or poorly produced response and then automatically correct himself with a more closely matched response. This, of course, indicated Roy was able to compare his own output with the stimulus provided by the investigator and then use this feedback for a more adequate production of the sound. One might speculate that Roy's impaired vision was compensated for by a more acute awareness of auditory stimuli and an increased ability to make fine auditory discriminations. This ability was especially important for

Testing

Aggressive behavior continued
intermittently

Discussion

Why was progress so rapid?

him, since his impaired vision did not allow him to observe many visual cues of speech unless he was within inches of the speaker.

A second attribute which may have fostered his rapid speech development pertains to his receptive language. As Roy's expressive verbal skills developed, he could identify many objects and events on first presentation. Likewise, when presented with multiple items, he would form plural responses even though such grammatical exercises had not been included in his training. Roy would often include the correct number when naming plurals (e.g. "two pens"). On one occasion, when presented with a second cup and asked "What do you now see?", he replied "another cup." This flexibility in his response repertoire does not seem typical of most retardates functioning intellectually at his level. These and other manifestations of his expressive verbal behavior are of considerable theoretical importance. From all observations it would appear that Roy had learned a fairly complex receptive language involving certain grammatical rules. At the same time, he did not have even the most elemental verbal repertoire at his command to demonstrate his competency in this area. This case is somewhat similar to one reported by Lenneberg (1962) concerning an eight-year-old boy with a congenital disability for the acquisition of motor skills who demonstrated a remarkable ability to understand the more complex forms of grammar. In Roy's case, however, the investigators were able to actually develop a verbal repertoire and then observe the subject's knowledge of language.

In the final analysis, this case emphasizes the need to examine more carefully the speech and language skills of multiply-handicapped children in residential centers. It would be presumptuous to state Roy would never have developed the functional use of speech. Yet, when one considers the relatively late age (16 years) at which he was first taught to speak, it seems unlikely such behavior would have occurred spontaneously. This case also points to the need for more research into various organismic parameters which might contribute significantly to the success of this type of program for visually impaired retardates. It is obvious that finding a suitable reinforcer is one of the major ingredients for an adequate speech development program of this nature. In addition, speech programs for the visually impaired child with severe language delay should take into consideration the child's ability to make auditory discriminations. If the child is deficient in this area, remedial training might precede the actual shaping of sounds and words. Further, it is speculative whether Roy's receptive language skills enhanced his articulation development, and yet this ability appears to have furthered both his expressive vocabulary growth and his use of phrases and short sentences.

Receptive language good

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TV Program on Blindness

Ten half-hour television shows describing the problems handicapped persons have and ways in which these problems can be surmounted are currently being presented by NBC-TV Education Exchange Series. This series, entitled, "To Live Again," was produced as an attempt to publicize the facilities available through the Social and Rehabilitation Service of the U.S. Department of Health, Education, and Welfare.

One of the shows, "The Black Curtain," is about the problems of blindness and has as guests three blind persons who discuss their personal rehabilitation histories. Among the guests are a blind pianist and Helen Scherer, an American Foundation for the Blind employee, who demonstrates various aids and appliances such as a chess set for the blind and the collapsible cane.

Among the other disabilities examined in the series are deafness, mental retardation, speech problems, and alcoholism.

Rehabilitation — An Aspect of Service for Handicapped Youth

Today, hundreds of thousands of handicapped youngsters are enrolled in special education programs provided by local public school systems. Thousands of others are similarly enrolled in private and parochial day schools.

In a 1958 survey made by the United States Office of Education, a record 882,066 exceptional children were reported to be enrolled in the public school system. About one-half of these children were receiving special instruction services primarily because of speech impairments, and one-quarter had exceptional educational needs because of blindness, partial loss of sight, deafness, impaired hearing, crippling conditions, special health problems, serious social or emotional maladjustments, or giftedness.

□ A more recent survey in 1960 gave rough estimates as to the number of handicapped children in our society as follows:

Condition	1960
Epilepsy	360,000
Cerebral Palsy	366,000
Mental Retardation	2,198,000
Eye Conditions	10,274,000
Hearing Loss	538,000
Speech Handicap	2,460,000
Cleft palate	93,000
Orthopedi	1,940,000
Rheumatic fever	891,000

What happens to this multitude when the learning aspects of education are completed? How are they prepared to take their places as adults in our competitive economic society? What resources are available to give these handicapped youths the help they need? The special education teacher can do only so much and then must seek the assistance of those who are trained in the techniques of offering complete rehabilitation services. We refer here to the services performed by rehabilitation counselors.

What is rehabilitation? What assistance does it offer handicapped youth? What relationship exists between the special educator and the rehabilitation counselor? How can the special teacher help to prepare these youngsters for what they will face when they leave school?

□ We often use the term "rehabilitation" when discussing the clearance of a blighted slum area. We use the same term when we discuss psycho-therapy for juvenile delinquents. For purposes of this paper, we shall define rehabilitation as the services and facilities needed to provide the optimum social,

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Number of Handicapped Children

What is Rehabilitation?

vocational, economic, physical, and mental adjustment of which the individual is capable.

We must also define two other terms to understand the meaning of rehabilitation—"disability" and "handicap". Kenneth Hamilton, in *Counseling the Handicapped in the Rehabilitation Process*, points out that the distinction is real. A disability is a physical or mental limitation and may be the same for two or more persons. A handicap, however, is individual and includes any emotional or physical limitations resulting from the disability that the disabled person has to surmount. A concert violinist would suffer a great handicap by losing a finger; a truck driver with the same disability would have little or no handicap.

Rehabilitation is not a new or novel approach to helping the disabled. It goes back to the days when Marco Polo travelled in China. There he found the equivalent of our hospitals for those unable to work or perform their normal activities. However, rehabilitation as we know it today received its impetus from post World War I and World War II legislation for returning disabled veterans. The Barden-LaFollette Act of 1943 (P.L. 113) was the original civilian rehabilitation act. It included the mentally ill for the first time in the rehabilitation process. The 1954 amendments provided additional services as well as additional funds for the growth and expansion of college and university training programs in rehabilitation counseling and related disciplines.

□ The rehabilitation process mentioned above is the general method of approach used in providing rehabilitation services for the disabled. The first step in this process is *case findings*. No rehabilitation program can exist unless those who are in need of help can be located. It is here that the special teacher plays an important role. He is in a unique position. The special teacher, if alert and properly trained, can pick out those who need help and refer them to the proper rehabilitation resource. The teacher is also able to counsel and offer assistance to the disabled child's parents. Although the special teacher is an important source in case finding, he is only one of many sources from which referrals to public and private rehabilitation agencies are made.

The next step in the rehabilitation process is *diagnosis, evaluation and planning*. Here too, the special teacher plays an important role. The rehabilitation counselor will often consult the teacher for an evaluation of the child's academic and vocational potential. The counselor may request a prevocational evaluation in the school's shops or extra-curricular activities. The report from the special teacher will influence the counselor's vocational recommendations. This close cooperation enables the child to continue his education in a "normal" school atmosphere and start his rehabilitation program at the same time. It is during this phase that the counselor learns of the child's needs and problems. Additional medical information and pertinent teachers' comments are found as part of the school's cumulative records.

Another aspect in the process in which the specialist in education partakes is *physical restoration*. It is at this point that a child's disability may be reduced. The importance of the specialist in speech, physical, or occupational therapy

Difference between "disability" and "handicap"

The Rehabilitation Process

The counselor's role

cannot be underestimated. He prepares the child for the more intensive medical treatment that may follow.

Training, placement, and follow-up are the next steps in the rehabilitation process. In these phases, the counselor may make use of other community resources such as trade or business schools, employment offices and, of course, the employer. Regardless of how good a job has been done earlier in the process, until we succeed in placing the youngsters in suitable remunerative employment the effort will have been for naught.

We have thus far emphasized the counselor's role in the rehabilitation process. What is the role of the special teacher?

□ The special teacher gets to know the youngsters in his class as individuals and as part of a group. He observes their physical and emotional development. He should therefore be aware of the psychological and physiological problems that will be confronting these youngsters in an often hostile world. He should have some insight about the acceptance or rejection of the disabled child by his peers. He must determine the disabled child's degree of security or insecurity. Early recognition of abnormalities in mental behavior can contribute to the prevention of future serious mental illness.

The properly oriented and trained special teacher contributes a great deal to the attainment of the rehabilitation goal. To accomplish this, the teacher must have a psychologically healthy attitude toward himself as well as toward his pupils. He must also know what to look for in appraising a physical or mental handicap or disability.

The special teacher must also be able to understand the problems of the parents of handicapped youngsters. He is often called upon to deal closely with parents in making referrals to community resources or in giving general educational guidance.

Not all special teachers are qualified to evaluate the needs of their disabled students. However, with proper training, the special teacher should be able to recognize deviations from normal behavior that justify referring the pupil to a community resource for treatment. Additional in-school resources available to the special teacher are the guidance counselor, the school nurse, physician and psychologist, the social worker, and, of course, the principal.

How can we improve the professional training of the special teacher? The need for special teacher preparation developed after, and in response to, the establishment of special classes and programs for exceptional children. The development and expansion of training in special education is relatively new. In 1929, 43 colleges and universities in the United States offered some courses for the preparation of teachers of the exceptional. By 1954, 122 colleges reported a course sequence regularly offered, not including summer session. By 1962, the number of colleges offering sequences had increased substantially, but current statistics are not available (1).

Regardless of what the federal, state, or local communities do at the administrative level, the success of any program for the handicapped child is dependent upon the personnel who have daily contact with the children themselves—the classroom and/or special teacher.

The Special Teacher's Role in Rehabilitation

Recognizing deviations from normal behavior

Improving professional training

A number of studies were made to investigate the personal traits of teachers working with the handicapped. In one of the studies, carried out by the U. S. Office of Education, over three-quarters of the teachers queried agreed that special education teachers had personal characteristics different in kind or degree from those of regular teachers. Some of the traits included: extra patience; mental alertness; flexibility; resourcefulness; enthusiasm; emotional stability; personal warmth; friendliness; understanding and sympathy, together with objectivity and sensitivity (3).

Other studies called for capacity for self-direction, perserverance, an experimental mind and good personal adjustment (2).

□ The preparation of the special teacher should cover four general areas of evaluation (1):

1. General cultural education
2. Background courses related to the general field of special education.
3. Preparation in elementary or secondary teacher education.
4. Professional preparation in a specialized area, such as:
 - a) Mental Retardation
 - b) Deaf
 - c) Crippled Children
 - d) Speech Correction
 - e) Partially Sighted
 - f) Blind
 - g) Emotionally and Socially maladjusted
 - h) Gifted

While it is important for the special teacher to be the "right type" and properly prepared, we cannot leave out the local boards of education, school principals, and supervisors. They too must be sufficiently "enlightened" to organize and administer programs that are needed by the community and the students. How much can the teacher accomplish if he does not have the full backing, cooperation, and understanding of his administrators? As rehabilitation has shown so often, it takes more than one person to win a ball game. Without question, a team approach is needed to provide essential services for the handicapped.

Unfortunately, we tend to falter here. One of the reasons for this failure may be that the lines of communication, all along the way, have broken down. We must then attempt to splice these lines and "hook up" with each other.

One of the best ways to improve the lines of communication within the school situation would be to have a rehabilitation counselor on the school staff. This counselor would work directly with handicapped students as well as perform the role of consultant to the regular or special teacher. The rehabilitation counselor who chooses to work in the education field would, as part of his training, select course work in the field of education to prepare him for the position.

During a recent summer session at Hunter College, several teachers in special education, who were taking the course *Principles and Practices of Rehabili-*

The Preparation of Special Teachers

Lines of communication must be improved

tation as a required elective in their master's program, were asked for their comments about the value of such a course for teachers. Most felt it was of great value.

This would seem to indicate that more special education teachers should look into the benefits derived from the study of rehabilitation. This would certainly help them to become more aware of the field of rehabilitation and its relationship to their work as special educators.

A special teacher can do a great deal to assist his or her handicapped students. However, his training must be sufficient to insure his own readiness to carry on such activities as mentioned above. It is our hope that the special teacher will become more aware of this aspect of service to handicapped youth and to the relationship that is needed between his discipline and that of the rehabilitation counselor.

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The Long Cane in Great Britain

The use of the long cane for mobility has finally gained a firm foothold in Great Britain. But, the beginnings and early developments were anything but auspicious.

This mobility device, which has proved so successful in America, initially met strong resistance in Britain. Many people thought of it as just another American gimmick being thrust upon them. Some thought the long cane *too* long for the crowded, congested conditions prevalent in this country. A few resisted its acceptance merely because it was new. To them, the traditional modes of travel were adequate for the mobility needs of most blind persons.

□ In addition to the above reasons, other, more important, factors caused reluctance to accept the long cane method. Foremost was the existence of a cane travel method called the "short stick." This cane is a multi-sectioned collapsible cane ranging in length from 36 to 44 inches. The methodology is quite simple. The user walks along the side of an inner shoreline, such as a wall, fence, or hedge and alternately taps the cane on the wall and in front of him. The traveler follows these walls or hedges until he comes to an opening, crosses over, and recovers his original path. One can usually aurally detect extremely wide openings and determine intersecting roads. While the system has some obvious limitations, it does allow the traveler to get from place to place with some degree of success. Moreover, little training is needed to learn the basic system—certainly a big advantage.

The main disadvantages are quite obvious: First, the shortness of the cane does not give the traveler sufficient warning of objects in his path. Second, the cane length is not in proportion to the height of the individual; its shortness tends to encourage poor posture in the user. Third, the proximal end of the cane is seldom held in a central position, so the distal end of the cane prescribes an inequitable arc. Fourth, the system does not encourage straight-line travel where there are no guiding walls, fences, or buildings. Last, the amount and quality of instruction have varied greatly; standards in instruction and professional training have been almost non-existent.

□ The short stick system survived mainly because of architectural conditions in this country. Unlike the United States, the vast majority of houses in Great Britain have enclosed or walled-in front gardens. Thus, most sidewalks are bordered on one side by an almost continuous wall, hedge, or fence. Despite this factor, many short-stick users have sought a cane method that would give them better protection, freedom from strain, improved posture, and acceptable appearance—in total, independent mobility.

The early experiments in introducing the long cane to Britain were sporadic

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Why Long Cane Met Resistance in Britain

Disadvantages of short cane

Why Short Cane Survived in Britain

and met with varying degrees of success. Dr. J. A. Leonard went to America and visited Hines in the spring of 1964 as a representative of the Medical Research Council. He was most impressed by the men at Hines, and upon his return to Great Britain, recommended implementation of the long cane method to the Royal National Institute for the Blind (RNIB) and St. Dunstons.

RNIB brought William Goodman to England for three months during the summer of 1965. The purpose was to evaluate the advantages and disadvantages of the long cane. Mr. Goodman's sojourn consisted mainly of demonstrations, lectures, and limited training of blind persons. RNIB made no immediate attempts to further use of the long cane at that time.

At about the same time, St. Dunstons sent Walter Thornton, himself blind, in July, 1965 to America to undergo long cane training. Mr. Thornton received training at Hines and Western Michigan University. He became very enthusiastic about the long cane method. On his return to England, he was able to get St. Dunstons to bring Stanley Suterko to a St. Dunstons Rehabilitation facility, Ovingdean, for one month. Mr. Suterko, working with Mr. Thornton, trained a limited number of St. Dunstaners in the technique, further demonstrating its merits. In the meantime, Dr. Leonard and Walter Thornton had met, an event of great importance for later developments.

The long cane movement gained momentum in the latter part of 1966 when RNIB arranged for Lee Farmer from Hines to work at their assessment center at Torquay. This was an important move since he was to train this country's first mobility instructors in the use of the long cane. The struggling lamb had at last gained its feet! The first big step was soon to be taken.

□ Through the combined efforts of Dr. Leonard and Walter Thornton, an organization, later to be called the Midlands Mobility Centre, was established in August 1966 in Birmingham. The project, originally two years in length, was funded by the Nuffield Foundation through a grant to the University of Nottingham. Stan Suterko was recruited to act as the project's chief instructor. The primary aim of the project was to demonstrate the feasibility of non-residential mobility training for blind persons. This was to be accomplished by: training blind persons in the use of the long cane; and training of sighted persons as mobility instructors.

Progress was slow during the early months of the first year. Recruitment of both trainees and instructors was difficult. Despite these early difficulties, Great Britain did have its first full-time mobility center and a total of seven instructors were trained during this period.

As a result of the dedication and perseverance of Suterko, Thornton, and Leonard, many local authorities began to request instructor training and a waiting list was formed. Blind persons also were now willing to try the long cane and evaluate it for themselves.

As the second year began, I succeeded Stanley Suterko as chief instructor. The staff of the Centre now consisted of the U.S. chief instructor and two British instructors, Miss M. Hulme and Mrs. J. Seddon, who had been trained by Stanley Suterko. These two young ladies proved to be fully the equivalent of any of

Early experiments with long cane

Establishment of the Midlands Mobility Centre

Centre's first year—progress slow

Second year—tremendous growth

our American counterparts. Their work was of the highest caliber and dedication. During the second year, the Midlands Mobility Centre grew tremendously. Fourteen instructors and 33 blind persons were trained. Instructor training programs were increased to six months in length, thus raising standards. Local government authorities began sending sighted home teachers to be trained in the method. Persons from outside the field were also recruited as instructor candidates, thus creating new personnel in the field. As a result of the progress, the project was granted a year's extension by the Nuffield Foundation. And I enthusiastically accepted an invitation to extend my stay for the project's additional year.

□ The third and final year of the project will be dedicated to the establishment of the Midlands Mobility Centre on a permanent basis. Training programs for instructors are nearly filled for the entire year.

The establishment of the Midlands Mobility Centre was crucial in the development of the long cane in Great Britain. It provided a center where information about orientation and mobility could be accumulated, assimilated, and dispersed. Instructors could then be trained professionally according to acceptable and ever increasing standards. The Centre was recognized by various bodies as the sole center for the training of instructors in the United Kingdom.

The project's success is the result of the work of many persons representing almost every level of blind welfare in the United Kingdom. The Centre's steering committee was representative of national and local levels of agencies for the blind, governmental and private agencies, and universities.

The blind persons trained at the Centre and by instructors in the field, prove that safe, efficient, and graceful mobility is possible. Blind Britons, trained by British instructors, are demonstrating the efficacy of the long cane method, within the prevailing conditions of this country.

Blind persons who try the long cane method are responsible for determining its merits. The overwhelming majority of those persons who have tried the system have adopted it emphatically. No better indication of success can be given than adoption of any device or method by blind persons themselves.

The most intriguing facet of the development of the long cane in Great Britain is the speed with which it has been accepted. The development of the long cane in the United States took nearly 20 years from inception to maturity. Yet, in barely five years, similar progress has been made in Great Britain. The British have been able to profit from our mistakes and gain from our experience.

The last chapter of the development of the long cane in Great Britain is as yet unwritten. One feels that, in view of the rapid progress and successes of the past few years, long cane mobility will shortly take its rightful place within the sphere of rehabilitation of the blind in Great Britain.

Centre To Become Permanent

Users enthusiastic

A Statement on Continuing Education in Special Education

Increasing concern with certification requirements for teachers of special classes; federal aid to college and university programs in the form of scholarships and other stipends, encouragement through federal support of new programs of teacher preparation; and the general upgrading of professional preparation of education, appear to indicate that within the next 10 years, teachers in classrooms for exceptional children will have successfully completed accredited teacher preparation programs and will be certified and licensed. Professional education in special education is at a crucial point in its history.

However, in order to maintain a level of competence in an expanding world of knowledge, the professional who is concerned with exceptional children must be involved in a continuing process of education. For this expansion of knowledge not only casts new lights and direction on what and how to teach, but also may dramatically affect the composition of the population to be taught. Furthermore, post-professional education is part of the continuing identification and involvement of an individual with his profession. Participation in a continuing program that involves professional knowledge helps in answering the question of professional identity. Special education, in its concern with the problem of standards in the preparation of teachers, therefore, must also commit itself to continuing education that is of a quality that befits a professional community. This continuation of education in terms of content and direction may be concerned with the enlargement of academic disciplines in terms of a broadened knowledge of specific content material, or it may be concerned with the nature and the content of the professional definition, i.e., special education. The concern here is continuing education within the professional area. However, this in no way rules out the need for growth, skill, and knowledge in academic areas. In discussing the problem, the presumption is that any program of continuing education is one wherein the participants already show evidence of expertise, as teacher, administrator, supervisor, or college instructor.

□ In enunciating a statement on the direction and intent that this post-professional education must assume, it becomes evident that while some problems are similar to those of other areas, others are not. There are five areas that appear to be basic:

1. The subject matter and field of inquiry.
2. The professional population.
3. The role of the university.

This article has been adapted from a paper prepared for the Professional Standards Committee of the Council for Exceptional Children.

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Areas of Concern

4. The role of quasi-professional instructional institutions.
5. The format of post-professional programs of instruction.

□ *The Subject Matter and Field of Inquiry:* The subject is children. While any child is a complex organism, the exceptional child is a subject about whom there is a constant aura of variability compounded by the nature of the observed and defined differences. These differences, which may or may not be of biological origin, can be affected by changes of a technical or therapeutic nature. Our subject, therefore, changes because the technical knowledge of our culture is changing. It brings correction as well as new variations to old problems.

Therefore, post-professional education has a service to perform in terms of the knowledge that is known that can be effectively utilized in the practical situation in which the professional worker is involved. It must differ from basic preparation, in that basic preparation forms the basis for initial identification with an occupational choice, and academic knowledge of how to handle a situation. Basic preparation in a professional area is but a projection into the future, existing as it does in a rather sheltered environment. Post-professional education, however, must afford insights to an individual who is capable of understanding the subject in terms of dimensions of behavior that are quite different from the understanding that he was capable of at the initial level of preparation.

The field of inquiry is cognitive since our professional area is education, whether it be functional or academic. To state the variety of differences within the learning situation is to state the obvious. It is upon this variety of learning now known to the practitioner that post-professional education must build its program. It must offer an opportunity for the analysis of learning, both theoretical and practical. It can afford to be intensive for a time in one specific area to the exclusion of others, for basically the design of this learning experience is not linked to the needs and pressures of a degree-granting process.

Post-professional experiences cannot be a mere echo of academic courses. There will always be those who will return for course work offered in degree-granting programs in order to explore areas that were not fully explored under prior programs. This fulfills a different post-professional need. However, continuing professional education in terms of its own role and purpose must define a goal and a *modus operandi* that places it in a continuum of professional responsibility. Within its operational procedures it must provide a meaningful synthesis of subject matter and field of inquiry that is flexible in terms of emergent knowledge, and the needs of individuals of diversified roles who will seek this experience as part of mature professional life.

□ *The Professional Population:* Any professional group proclaims its uniqueness, and indeed its special character is part of its claim to profession. While post-professional education in one form or another will be sought by personnel at all levels of academic and administrative responsibility, the largest numbers will come from the group who actually teach the youngsters. This group, reflecting the teaching population as a whole, is largely feminine. Without attempting to recapitulate the voluminous literature on women in American life,

The Subject Matter and Field of Inquiry

Post-professional education can be interesting

Not an echo of academic courses

The Professional Population

the career pattern of women in professional life is quite basic to an evolving concept of standards in continuing post-professional education.

For the most part, if current statistics continue, the teacher will be a woman whose professional education has been characterized by "discontinuity" (American Academy of Arts and Sciences, 1964) of academic experiences. This may originate at the undergraduate level, when early marriages and child care interrupt the traditional course of the baccalaureate preparation; or it may originate between the time of initial preparation and the first practical professional experience. Very often this "discontinuity" comes about after professional training and paid professional experiences. This uneven pattern of professional education and professional experience strikes at the very core of the process of professional identification. Furthermore, the various patterns of academic preparation; the distribution of ages in relationship to entering and re-entering the professional job market; the archaic concept of "teaching as a part-time job and good for a woman with child care responsibilities"; and our own culture's rather ambivalent attitude about the scope and process of education for exceptional children, does not assist the female teacher in grappling with a loosely defined sense of profession. This does not easily lead the teacher to partake of continuing education. However, for this segment of our professional population, a vital continuing post-professional educational program often provides the only opportunity for the strengthening of a loosely defined sense of profession. It is here, within an ordered experience, dove-tailed with the practical, that she is permitted to enhance her expertise and develop her own sense of profession.

Too often, the assumption is made that it is only the teacher who is in need of exposure to the newer developments in the field. This is reflected in the kinds of programs that are designed to meet the needs of the adult—child interaction in a teaching situation. It would be a mistake to provide only for those partaking of this particular professional experience. Working with the problem of exceptionality involves a multitude of professionally educated individuals in different institutional roles. It is the rare person who is exposed to all. Furthermore, organized exposure permits time for evaluation and meaning that is often difficult to come by under the typical pressures of institutional commitment. Since supervisors and administrators are often responsible for post-professional training programs, the types of exposures that they have concerning emergent knowledge and trends directly influence the quality of experiences that classroom teachers have.

Though college and university are traditionally closer to new knowledge, this alone does not excuse faculty from involvement in a program of expanding horizons as seen in the basic institutional commitment to the intent of the "sabbatical year."

□ *The Role of the University:* In Western civilization the university has traditionally assumed a role that has enabled it to pursue, within its own valued definition, "truth" and disseminate the knowledge it has accrued. The service function most directly stated in terms of professional schools is a function that has not been satisfactorily defined or fully accepted. There-

Discontinuity of education a characteristic of these teachers

Many professions involved

The Role of the University

fore, continuing education, which within its definition of scope and function cannot include a certificate of finalization such as a degree, presents an even greater problem to the university. The university cannot abdicate from a responsibility inherent in its initial conception of being: study and communication of the results of this study. However, continuing post-professional education demands a different form and structure from that of the traditional university organization. The university is faced with an analysis of the dual role that professional education always must play: that of education and training. Flexner offers a definition that states the problem quite well. "Education is an intellectual and spiritual process. It has to do with opening the windows of the human mind and human soul. It involves the effort to understand, to comprehend, to be sensitive to ideas, aspirations and interests to which the individual might otherwise be indifferent. Training connotes improved ability to do something, without deepened understanding, widened sympathy, or heightened aspirations. . . . Training concerns itself with tools and devices while education concerns itself with something that has intellectual or spiritual content and motive. Training is a means; education is an end" (Flexner, 1932).

Higher education must evaluate its role in continuing professional education. Is it to assume a major role in the responsibility for a different educational experience, or is it to contribute its resources in a tangential fashion, such as supplying its staff on an as needed basis as consultants? Is continuing post-professional education to be seen as basic to the design of the curriculum sequence or is it to be seen as only a peripheral activity? Who shall assume the responsibility for its direction and who shall assume the duties of instruction? What shall be the rights and privileges of the staff involved? To what extent is the program to be self-supporting and to what extent is it to be subsidized? How will the university meet the challenge of "clientele pressures and desires" and its own concept of purpose.

□ *The Role of Quasi-Professional Educational Institutions:* working within a framework that is predicated on flexibility and a sensitivity to the evolving needs of the individuals involved, many agencies can provide a meaningful post-professional educational experience. State and local boards of education, as well as professional organizations, see continuing post-professional experience as part of their purpose and are deeply committed to it. Quality experiences, organized along a continuum of diversified exposures, contribute by the variety of points of view and institutional perspectives of the sponsoring agencies. The continuing involvement of the non-academic environment in post-professional education assures an interaction that is basic to the concerns of active professional commitment. The problem here is excellence as it is elsewhere. The added dimension is the institutional difference of the agency. While the university may be the "reluctant scholar" in a service function, the service organization may neglect the theoretical foundations and their implications in its search for answers to the immediate. As part of professional growth, all agencies involved must be concerned with a continuous dialogue concerning goals and quality.

Professional education plays dual role

Role of Quasi-Professional Educational Institutions

□ *The Format of Post-Professional Programs of Instruction:* Post-professional programs of instruction will assume many forms and will reflect the experience and the composition of the professionals involved. Workshops, professional literature, conventions, short term seminars, academic courses, and other variations will all be part of a creative program. There will be both formal and informal experiences and the levels of these in terms of theory or application will vary. It is inevitable that there will be repetition. Problems such as "credit" and certificates are still a part of the scene. Perhaps they exist because, in the need to obtain teachers, education and particularly special education, has not clearly separated professional from post-professional education. More specifically, credit implies university responsibility, and by inference denotes direction which serves as approval when questions of positions and salary are encountered. Willingness to accept university format reflects confidence, but also presents a challenge in terms of the definition and goals of post-professional education.

Format also implies an approach to how individuals learn. In this case, a knowledgeable adult who brings to the classroom not five or eight or nine years of living experience but at least 21. More likely than not, individuals seeking continuing post-professional education are experiencing problems that are no longer the problems of youth. They are perhaps faced with two contradictory needs "... a positive force toward the achievement of positive goals, an expansion of the individual; and a negative force, an increasing need to conserve and to protect against losses." New knowledge may excite, but it also frightens. Courses are feared, yet evaluation is demanded. Format may be threatening. Sometimes it is easier to listen than to discuss; sometimes it is less threatening to react only to issues at the moment without adequate preparation that may shake some preconceptions.

Those planning a program of post-professional education are involved with the problems of adult behavior and learning. These are not the problems of children and youth. This need to organize around a different "psychology of learning" introduces an added dimension to post-professional education. For the most part, adult learning is not the immediate concern of those who are most interested in the learning problems of children and youth who are different. However, the learning that takes place within the individual directly affects the youngsters with whom he is concerned. The commitment to continuing post-professional education, therefore, includes an examination of the needs and goals of the adult who is involved in this educational experience.

□ *The Question of Excellence:* Since, by definition, post-professional education is flexible and variegated, catering to a diversity in terms of population and need, how can an evaluation be made that will assure quality, without the danger of conformity? Aside from excellence, a program of continuing post-professional education in special education must give evidence of:

1. A clearly defined goal.
2. A pre-planned syllabus.

Format of Post-Professional Programs

A different "psychology of learning" involved

The Question of Excellence

3. A specificity of time and a locus of space.
4. Professional direction even though another individual without the standard professional credentials may assume the *major* role in the program of instruction.

Finally, any appraisal of a specific program of continuing post-professional education must be made in terms of the situation within which it is given. The assumption is that of flexibility in terms of adult professional needs, adhering to excellence, within its acknowledged diversified goals and methodologies.

In conclusion, continuing post-professional education must accommodate the "wants" of the problematic present and the "needs" of a dynamic, continuing, professional identity. Without a meaningful accommodation, continuing post-professional education may evolve into little more than expeditious reaction to the moment or to an exposure to accumulated knowledge that does not serve the intent.

Conclusions

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From the Field

This is the first in a series of short articles devoted to ideas and practices the regional consultants of the American Foundation for the Blind have come across in their travels. Not all of the ideas will be necessarily new, to all of our readers, but we hope at least some of them will help some to solve some problems within their own agency or institution. The Editor.

The Family Service Society of New Orleans has an imaginative program which may have implications for agencies trying to reach blind persons in need of social work and home teaching services.

□ The Society has begun to hire interested but untrained individuals to serve as "practical social workers" within their own neighborhoods. These practical social workers are given in-service training so that they can meet some of the immediate needs of their neighbors. Those in need of more aid are referred to the Society's professional staff. The Society feels that the practical social worker plays a particularly important role in the referral process. Very often the prospective client is aware that he needs certain services but is afraid to ask for them. The practical social worker, through his personal knowledge of the prospective client and his environment, is often able to allay these fears.

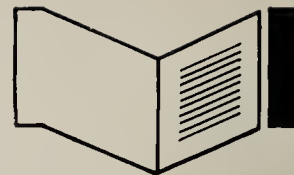
Another new staff position at the Family Service Society of New Orleans is the home maintenance teaching aide. At present there is only one, a trained home economist, but the Society feels it could easily use five more. Like the practical social worker, the aide works in her own neighborhood.

The home maintenance teaching aide does not go into the home to merely tell the client how to budget, clean, or provide adequate food on an inadequate budget. Rather, she actually helps the client to do these things. The aide and the client market together, passing by the attractive but expensive items and finding the nourishing but inexpensive ones. The aide also works along with the client in other daily activities such as cleaning, child care, and child health. Each client can have the service for at least a month.

The Society has also cooperated with the Tulane University School of Social Work in establishing two courses for these practical workers. The courses do not lead to degrees but provide a background of information that adds to the workers' skills and supplements the in-service training. These courses are not one-way streets. The professors also learn from students who know neighborhoods from inside and not as casual visitors.—Vernon Metcalf

Neighborhood People Employed

Tulane University Cooperating



A Mobility Evaluation Report for Parents, by Edith C. Kirk. **Exceptional Children** (The Council for Exceptional Children, National Education Association, 1201 Sixteenth Street, N.W., Washington, D.C. 20036), Vol. 35, No. 1, September 1968, p. 57-62. The story of the development of the Mobility Evaluation Report and how it is used in the Detroit Public Schools.

Effects of Orientation and Redundancy on Tactual Perception of Form, by Joel S. Warm and Emerson Foulke. **Perceptual and Motor Skills** (Southern Universities Press, Box 1441, Missoula, Montana 59801), Vol. 27, No. 1, August 1968, p. 83-89. Report on one aspect of continuing research at the University of Louisville aimed at enlarging the scope of tactual codes.

The Law Relating to the Blind, by Philip F. Skottowe. Butterworth & Co. Ltd. (88 Kingsway, London W.C.2, England), 1967, 162p. £2 5s. This second edition up-dates a history, first published in 1933, of Great Britain's laws relating to the blind.

Pre-College Orientation of Blind High School Graduates, by Leo Jivoff, Project Director. Syracuse, New York, Upstate Medical Center at Syracuse, June, 1967, 15p. (Available from ERIC Document Reproduction Service [see address above]. Order Number—ED 015 323, hard copy @ 68c, microfiche @ 25c.) Final report on a three-year project to demonstrate the value of confronting the students with and assisting them in resolving a realistic series of personal, academic, social and

psychological problems which occur in colleges.

Measuring Form-discrimination in Blind Individuals, by John M. Crandell, Donald D. Hammill, Casimar Witkowski and Fred Barkovich. **The International Journal for the Education of the Blind** (1839 Frankfort Avenue, Louisville, Kentucky 40206), Vol. 18, No. 3, October 1968, p. 65-68. Report of preliminary work in developing a means of measuring tactual-kinesthetic form discrimination.

Ohio Programs for Visually Handicapped Children; A Report on the 1964-65 Columbus, Ohio Study of Partially Seeing, prepared under the direction of Edward C. Grover, Harold J. Bowers and S. J. Bonham, Jr. Columbus, Ohio, Ohio Department of Education, 1965, 102p. (Available from ERIC Document Reproduction Service, The National Cash Register Company, 4926 Fairmont Avenue, Bethesda, Maryland 20014. Order Number—ED 015 598, hard copy @ \$4.16, microfiche @ 50c.) Report on the status of thirty-six children identified as partially seeing in the Columbus study. The children received pediatric, neurological, electroencephalographic and psychological examinations. Their case histories are presented in tabular form.

Congenital Blindness as an Instance of Sensory Deprivation: Implications for Rehabilitation, by John T. Neisworth and Robert M. Smith. University of Pittsburgh, 1965, 15p. (Available from ERIC Document Reproduction Service [see address above]. Order Number—ED 015 586, hard

copy @ 68c, microfiche @ 25c.) Short review of research concerning the relationship of sensory deprivation to personality variables and subsequent behavioral and cognitive changes.

Services for Children with Eye Problems; A Guide for Public Health Personnel, prepared jointly by the American Public Health Association and the National Society for the Prevention of Blindness. (American Public Health Association, Inc. 1740 Broadway, New York, N. Y. 10019), 1967, 110p. \$3.00. This revision of a guide first published in 1956, has been prepared by a multidisciplinary group including medical, educational, administrative and other professional personnel.

The Mouth of the Wolf, by John Windsor. Hodder and Stoughton, Limited (St. Paul's House, Warwick Lane, London, E.C.4, England), 1967, 224p. 25s. A recounting of the second World War experiences of hero George Paterson, a Canadian attached to the British army and active in the Italian campaign. The author is himself a Canadian and a veteran of the war in Italy where he was blinded while serving with the 2nd Canadian Armoured Regiment.

Correction

In the report of the AAWB meeting (NOB November 1968), it was erroneously stated that AAWB chapter presidents automatically become members of the AAWB Board of Directors. In eight of the chapters, the representatives are persons other than the president. Each chapter designates who will be its representative or representatives.



■ The National Accreditation Council has announced the appointment of five new board members.

They are Mrs. Edwin D. Campbell, secretary of the Massachusetts Association for the Blind; Robert C. Goodpasture, executive vice-president of National Industries for the Blind; Douglas C. MacFarland, Ph.D., chief of the Division of Services for the Blind in the Rehabilitation Services Administration; Hon. Reese H. Robrahn, Judge of the Shawnee County Magistrate Court, Topeka, Kan.; and Raymond C. Wieboldt, Jr., past president of the Chicago Lighthouse for the Blind.

NAC has also announced several categories of associate membership for agencies and associations that are not subject to accreditation but are concerned about services for the blind.

A leaflet describing the various kinds of associate memberships is available from the National Accreditation Council, 84 Fifth Avenue, New York, N.Y. 10011.

■ Jansen Noyes, Jr., president of National Industries for the Blind and the American Foundation for the Blind, has received an award for distinguished service to the blind from The Lighthouse, The New York Association for the Blind. The award, in the form of a silver lighthouse, was presented to Mr. Noyes at the annual meeting of the New York Association for the Blind on October 31, 1968.

■ The first issue of *Current Contents, Education*, will be published in January 1969. The new publication has been developed by the Institute for Scientific Information and the Encyclopedia Britannica Educational Corporation for people in the field of education.

Current Contents, Education is a weekly,

pocket-size guide to the contents of 600 education journals. Subscriptions are available for \$67.50 a year. Group rates are also available.

For more information, write to the Institute for Scientific Information, 325 Chestnut Street, Philadelphia, Pa. 19106.

■ A revised edition of *Scout Literature for the Blind and Visually Handicapped* has been published. For more information, write School Relationship Service, Boy Scouts of America, New Brunswick, N.J. 08903.

■ *The Braille Monitor*, official organ of the National Federation of the Blind, is now available on talking books from regional libraries.

This monthly publication includes federation news, as well as national and international items of interest to all blind persons.

Personal subscriptions to *The Braille Monitor* are available free in braille, recorded, tape, or ink editions from the National Federation for the Blind, 2653 Shasta Road, Berkeley, Calif., 94708.

■ Mrs. Margaret L. Bluhm has been appointed executive director of the Foundation for Blind Children, Scottsdale, Ariz. Mrs. Bluhm replaced Mrs. Patricia Buchanan, who resigned.

■ The FIGHT FOR SIGHT, the National Council to Combat Blindness, Inc., has announced that application forms for the organization's 1969-1970 grants and awards for eye research are now available.

They may be obtained from the Secretary, FIGHT FOR SIGHT, 41 West 57th Street, New York.

Applications may be filed until March 1, 1969 for the 1969-70 awards.

The FIGHT FOR SIGHT has also announced the appointment of four new members of its Scientific Advisory Committee. They are Henry F. Allen, M.D., Harvard Medical School; Herbert Kaufman, M.D., University of Florida, Gainesville; Monte Holland, M.D., Tulane University; George N. Wise, M.D., New York University.

■ Four workshops for the blind have been awarded the first Industrial Achievement Awards of National Industries for the Blind. Winners were selected in four categories, based on annual sales volume.

The winning organizations are: Tarrant County Association for the Blind, Fort Worth, Tex.; Maryland Workshop for the Blind, Baltimore; Oregon Industries for the Blind, Portland; and the Vermont Workshop for the Blind, Montpelier.

■ Jack L. Geyer is the new director of workshop activities for the Pittsburgh Branch, Pennsylvania Association for the Blind. Previously, Mr. Geyer, who studied at Northwestern, Pittsburgh, and West Virginia universities, was contract director for Goodwill Industries of Pittsburgh.

■ "The Most Important Thing in the World," a pamphlet about careers in the rehabilitation field, has just been published by the National Easter Seal Society for Crippled Children and Adults.

Copies, at 25 cents each, can be obtained from the Society's headquarters, 2023 West Ogden Avenue, Chicago, Ill., 60612.

■ Dennis C. Hirschfelder has joined the staff of the National Society for the Prevention of Blindness as a field consultant. Mr. Hirschfelder was formerly a sales representative for the Ostertag Optical Service in St. Louis, Mo.

■ A new 16-page pamphlet, *Films for Early Childhood Education*, has just been published by the Association for Childhood Education International.

Copies of the pamphlet can be purchased, at 50¢ each or five for \$2 from the Association at 3615 Wisconsin Ave., N.W., Washington, D.C., 20016

■ Dr. Paul Magnuson, chief medical director of the Veterans Administration in the period immediately following World War II, died on November 5 in Washington, D.C. He was 84 years old.

Dr. Magnuson was an important and influential figure in the efforts to rehabilitate the blinded veterans of World War II.

■ The 1968 revised edition of *Reading Aids for the Handicapped* is available free of charge from the American Library Association, 50 East Huron St., Chicago, Ill., 60611.

Aids such as large type books, braille and tape recorded materials, and commercially manufactured equipment are listed.

■ Dr. Donald R. Calvert, former director of the San Francisco Hearing and Speech Center, and Robert Dantona, a specialist in the education of deaf-blind children, will supervise the setting up of the centers for deaf-blind children authorized by Congress.

The centers will be set up—in various parts of the country—under the newly organized Projects Center Branch of the Bureau of Education of the Handicapped of the U.S. Office of Education.

■ *Braille in Brief*, by Bernard M. Krebs, and developed by the Jewish Guild for the Blind, New York City, has just been released by the Library of Congress.

This new book is an accelerated course in braille reading for blind adults. Among the features included are an enlarged braille cell for the first few pages; braille letters introduced in raised letters in an order conducive to the early learning of contractions; and a page of print facing each page of braille.

The book comes with a "Teacher's Guide" so that the blind person can learn

braille at home with the help of family and friends, and a pocket book of braille contractions for easy reference.

The whole set is available free of charge from the Library of Congress, Division for the Blind and Visually Handicapped, Washington, D.C. 2-542.

■ Mrs. Dan Y. Sage has been appointed executive director of the Georgia Society for the Prevention of Blindness. She replaced Miss Sue Hammack, who resigned.

■ Oscar Friedensohn, Director of the New York State Commission for the Blind and Visually Handicapped, has received the 1968 Award for Outstanding Service to the Handicapped of the Metropolitan New York Chapter of the National Rehabilitation Association.

The award was given to Mr. Friedensohn for his leadership in encouraging the use of all community facilities to serve blind persons and for his attempts to eliminate the duplication of services, facilities, and staff, when this is not in the best interests of the people being served.

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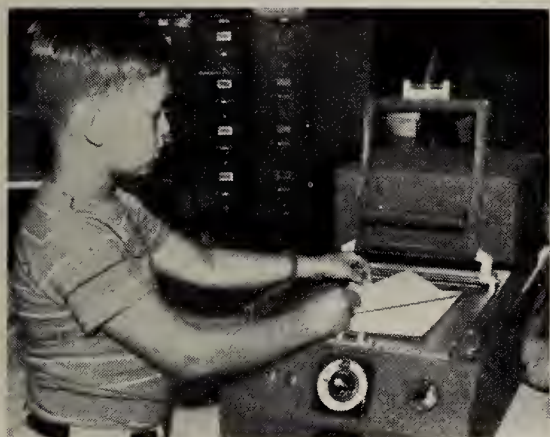
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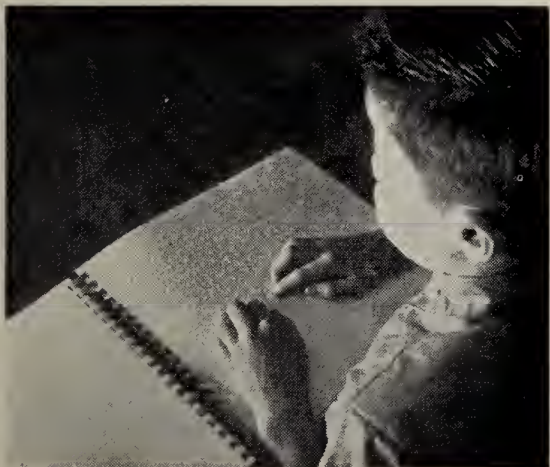


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Problems in the Adjustment of the
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Problems in the Adjustment of the Visually Impaired Child

By "visually impaired" child, we mean a child showing a significant reduction in binocular vision whose remaining vision with best possible correction can be used as the main means of educating him.

This intentionally vague definition can be understood only imperfectly in terms of acuity figures. In special classes of children with poor vision, visual acuities after correction can reach from $1/50$ to $4-5/50$. Other ophthalmological conditions (nystagmus, decentration, tunnel vision, or peripheral vision) may add to the fact that a child with a given specific acuity will be more or less handicapped; but a number of psychological conditions may also intervene to a great extent. Among the latter, intellectual capacity and educational environment play a preponderant role and determine the fact that, among children of the same visual acuity, some are capable of integration into sighted classes, some can be put into classes for the visually impaired, some must be educated with the blind, and some are uneducable.

All these factors are objects of our research. It is outside our concern and competence to deal with etiology or the strictly ophthalmological aspects of congenital or early visual defects. We want to deal selectively with the psychological characteristics of these subjects when they exist, with their role in the framework of psychological response to physical handicap in general, with their genesis, and with their correction.

□ Psychological characteristics which occur frequently if not always in handicapped children include anxiety, tension level, excessive dependence on others (particularly the mother), apprehension about the world outside, new experiences, and competition. Some differences among the handicaps can be noted. Schematically, we can say that while a child with a motor handicap reacts with character disorders, the deaf or hard of hearing child tends toward isolation, depression, autistic withdrawal, while *the psychological disturbance of the visually impaired child is typically a phobic attitude*—the world and external objects are felt as dangerous or forbidden.

It must be emphasized that the problems of the visually impaired child are not those of the totally blind child. In fact the visually impaired can feel strangers both to the world of the sighted and to the relatively protected world of the blind. Hence the question, what is the role of the sensory defect as such? What is the role of the social environment, and of the educational consequences of the defect? These factors are of course closely intertwined, but we are inclined to think that the defect itself intervenes directly only at that point where

This article has been translated and adapted from one that appeared in the May 1967 issue of *Les Annals d'Occulistique* with the permission of the author and publisher.

GABRIELLE-CATHERINE LAIRY, PH.D.

Dr. Lairy is on the staff of the Laboratoire de Neurophysiologie at Hopital Henri-Rousselle in Paris.

Objects of research

General Data

The problems of the visually impaired child are not those of the totally blind child

the responses to the defect become crucial (roughly, at acuities below 1/10 after best possible correction). Thus, if the congenital defect is a crucial factor in adaptation, we ask to what extent this is because it produces important differences in the relation of the child to those around him and hinders the acquisition of primary experiences.

□ A distinction must in fact be made between those whose remaining vision is used early and maximally, and those whose remaining vision is used little or not at all. It is now certain that those with very little vision can behave like the sighted in every way, and have few difficulties in adaptation beyond the purely technical. Among those whose training in use of remaining vision has not been carried out satisfactorily, or has been interrupted, difficulties in adaptation of varying degree can be noted, the more dramatic the later the attempt to adapt.

The attitude of others accounts for the relatively specific psychological disturbances of the visually impaired. If attention is focussed on the visual deficiency, the child is considered a cripple; if attention is focussed on the residual vision, the child is considered as sighted. In either case, the evolutionary view of the child's development is changed. Here we must insist on the crucial distinction between *vision* and *gazing*. Training of gazing permits maximal use of weak vision. Nonlearning, frequently the forbidding of gazing brings on difficulties in adaptation and the phobia already mentioned. There is also the very close interrelationship among vision, gazing, and general motor activity. While vision undeniably stimulates the early motor activity of the child, it appears quite clear from some recent experimental studies that motor behavior facilitates visual training and perceptual discrimination.

□ The time at which visual impairment is detected is crucial. A rough distinction can be made between two categories of the visually impaired of preschool age (up to six or seven years). The first comprises those in whom a visual impairment was discovered incidentally during a routine general examination after three years of age or in kindergarten. These are generally raised as sighted children, since their visual impairment was unknown until then. Even if the discovery of an important visual impairment at this late date proves catastrophic for the parents, it is not usually enough to upset the balance already acquired. Such children show a certain clumsiness, fall more frequently than others, or bump into objects they see poorly, but usually they present neither special problems in adaptation nor specific emotional problems. These children are likely to benefit most from special education which equips them technically for an elementary school education, and permits them eventually to overcome their difficulties and to integrate later into sighted classes.

The second category, of those in whom the impairment is discovered very early—at birth or during the first year—presents a quite different problem. With these children, the disturbances in the development of the child resemble those of the congenitally blind, which we will sketch in brief (Burlingame, 1961, Lairy and Leger 1965).

□ Most observers have emphasized the retardation of postural development among blind children. The retardation of tonic development in the first year

Importance of Training in Using Remaining Vision

Distinction between vision and gazing

The Visually Impaired Child of Preschool Age

Retardation of Postural Development

has two basic causes. The first is the absence of visual stimulation, which plays a fundamental role in maintaining the child's passivity; the second is reduced social stimulation, from the mother particularly, as compared to the sighted child. The reduction in stimulation is in part due to parental depression over the child's blindness. The mother is not gratified by the child; on the contrary, she is deeply wounded and guilty, and cannot establish a satisfying emotional exchange with him. This often deep and enduring parental depression brings on an emotional rejection and a conscious or unconscious wish for the child's death. The child, in turn, responds by withdrawal and passivity. The mother feels no demand, offers no stimulation to the child's activity. The child thus receives less than normal stimulation, whereas he needs a surplus of stimulation to make up for the lack of visual stimulation.

□ To the absence of exteroceptive stimulation through the visual channel is now added a complex deprivation consisting of multisensorial and affective components, and some active and passive motor restrictions deriving from the attitudes of the social environment. There are undoubted repercussions on the emotional life of the child, and secondary effects on the development of the self. Eventually, a purely autonomous type of activity develops upon this background of passivity and hypotony: rhythmical movements of head and body, oscillatory balancing movements to and fro, or side to side. These aimless activities, which often occupy most of the waking life of the child, are sometimes accompanied by a real phobia towards contact, a refusal to manipulate objects, and a contrasting hyperactivity of the feet and legs. When walking begins, often quite late, such children use their lower limbs in a whole series of activities (i.e., stamping, making noise), experimenting with the association of sound and movement, in a context of objects devoid of affective significance and of ludic activity. Learning to walk, often already late, is made still later and still more aleatory by the fact that the self-assurance of the child is continually questioned. Walking increases the number of difficult and unknown situations he may encounter, and makes him more conscious of the dangers surrounding him. The justified worries of those around him are added to his own fear, and the unending restrictive warnings, which limit all his activities, lead him into still greater dependency on sighted persons.

Learning to speak is rather different an experience for the blind child than for the sighted child. The difference is not always obvious before speech appears. Babbling seems to play a more important role, and to last longer. Words are toys before they become tools to communicate, and speaking is an activity having an end in itself. When sighted children learn to speak, the number of words acquired usually grows quickly and continuously. With blind children, however, mothers often observe that between 16 and 18 months, when other children enrich their vocabularies daily, blind children seem to forget easily the few words learned, and to repeat earlier words tirelessly.

The relationship of mother and child is not appreciably different in most cases, whether the child is blind or visually impaired. Maternal depression is common, if not invariable, when visual anomaly is discovered. The family passes through several phases at each consultation, from hope, through dis-

Causes

Learning to speak

Maternal depression

couragement, and the same feelings of maternal guilt and depression, and the same attitude of ulterior overprotection is noted.

In this connection, we often observe the mother's conscious or unconscious desire that the child should not grow. She feels he will be easier to protect if he is little. The child responds with many signs of emotional immaturity, including refusal to leave the mother, enuresis, disturbances of sleep, baby talk without the use of "I" (maintained by others around him who speak to him in the third person until he is quite grown up), and so on. Such an environment can create true conditions of pseudoretardation, with accompanying blunting and inhibition of the child, whose actual intellectual capabilities it becomes impossible to estimate.

The lack of guidance and information for parents is, in large measure, responsible for the developmental difficulties of these children. Experience proves that if those around him manage to surmount their own problems, and to educate the child properly, he will develop much more closely to normal, whether he is blind or visually impaired. Through lack of information, the problems of educating the child are badly handled, and the possibilities open to him are not known. Schooling with sighted children is sometimes available, especially in rural areas where there are no special schools. Schooling with blind children depends as much on geographical location as upon advisability. It is sometimes refused in any case by parents to whom it represents a formal confirmation of blindness. The family often cannot envisage school for the child at all; the idea of the child's infirmity is so deeply rooted, they are so convinced he will not be accepted anywhere, that they project into the world their own unconscious rejection of the child as an individual having the capacity for and the right to a free and independent existence. In general, they fear what may happen to the child as soon as he moves away from their supervision; but this is a rationalization of an attitude, an inverted transformation of the earlier wish for the death of the child and, above all, of the fear of his independence. It has become apparent to us that while the initial maternal despondency arises from a feeling of frustration and castration over the child's disability, the over-protective mother gradually reconstructs her very existence and her entire self around the notion of an infirmity; and she can abandon this notion only at the price of a new depression as mutilating as the first.

□ The visually impaired child comes to a special class indirectly via a sighted class (wherein his impairment is discovered), or directly (as on the advice of an ophthalmologist). Until a few years ago, only an ophthalmological evaluation was required for admission; now a psychometric test battery is added, the results used in orienting the child. But even before these evaluations are made, the prior "natural selection" is made by the parental acceptance of schooling for the child in a sighted setting. Such a child, at the age of six or seven years, should have only technical problems in learning to read, write, etc., the difficulty depending on his degree of vision. The equipment generally available in these classes (adequate lighting, movable work surfaces, text in large print, and so on) suffices to solve these problems. This situation holds even for the few children brought up as sighted to that point whether the visual impairment is discovered

*Lack of guidance and information
for parents*

The Visually Impaired Child in Special Schools

relatively late, or whether the family has tried to educate the child by encouraging his attempts to overcome instrumental difficulties (i.e., by adapting education to his needs).

The situation is much less simple for the majority of children, and consequently multiple psychological problems are likely to complicate schooling. Among children six to 10 years of age, these problems can be found on several levels, intellectual, psychomotor, and affective (Lairy et al, 1963). On the intellectual level, an archaic belief in a link between visual and intellectual impairment is still widespread. The underlying causes of this belief are complex. They stem in part from the attitude of the handicapped students themselves, and in part from the difficulty with which the sighted identify with them. Certainly an intellectual impairment can coexist with a visual, and this will greatly hinder overcoming the purely visual impairment. But we have noted that the visually impaired child can be defective in fact, owing to a lack of freedom in behavior and the lack of training in many life activities. Up to school age, it is in fact as much on the basis of his practical intelligence of what he knows how to do that a child is judged, rather than on the content of his talking; and we have already mentioned that his speech often remains infantile.

□ These facts are not without practical consequence. To an ever greater degree, the results of psychometric evaluations are taken into account in deciding class level, the need for a remedial class, or rejection from the school system. Yet evaluation at this level is not simple. Even the choice of tests is debatable: one can choose tests for the sighted, tests for the blind, tests for the sighted from which visual items have been removed, or wholly new tests. What test is chosen depends on what is expected from it. We believe that, since such children must eventually integrate into a sighted world, tests for sighted children can be used. But they cannot be considered as a means of absolute measurement of true intellectual potential. They are only a measure of the present level of functioning of the child and can give an indication of the tendencies which education or re-education can correct. We also believe that psychometric tests are best given, not upon admission, but about six months after the child has been integrated into an informed medical and pedagogical environment. Motor and psychomotor difficulties are frequent among visually impaired children. They are often clumsy and without freedom in movement. We have mentioned the blindisms which characterize the behavior of blind or severely visually impaired children in the early years. These behaviors can persist to school age, and reappear when the child is not otherwise occupied. They can also coexist or alternate with very great postural and motor instabilities combined with anxious exploration of the unknown environment, and with parasitic movements of the face and hands, exaggerated by either pleasurable or painful emotions. These children are stiff, awkward, basically hypotonic with compensatory exaggerated postural tonus; the sense of balance, the ability to stand on one foot or to jump are often acquired with difficulty. The praxic activities of these children can be very limited: they are unable to dress themselves, or to make the simple gestures of everyday life, not only because they are clumsy, but above all because they have not been encouraged to do so, and the mother

Psychological problems likely to complicate schooling

Practical Consequences

has done it for them to a very late age. Many visually impaired children are also poorly lateralized.

□ The most disturbed motor activity of all is often that of gazing. Many do not know how to explore with the eyes, and even avoid using remaining vision. Some act like blind persons: hands extended, they explore objects tactually, despite a usable residual acuity. Dyspraxia of vision—a phobia of seeing—may be a reaction to the fears of others that use of remaining vision may degrade it further.

With suitable education, assisted by psychomotor reeducation, most of the tonic-motor and psychomotor disturbances can be reduced or corrected. It is around the ages of 10 and 11 that the most decisive step seems to be made in overcoming the most flagrant motor and psychomotor difficulties. If this reeducation is not possible (lack of appropriate facilities, no integration into a sighted environment, family attitudes), surmounting of the difficulties does not occur and one can see, in the worst cases, the growth of an actual psychosis with increasingly maladaptive behavior which may threaten to place them among the severely retarded.

The disturbances we have listed and described are not observed full-blown in all children, but appear in varying degree. Yet it is easily understandable how this background of general motor and psychomotor difficulty hinders scholastic achievement. The analysis of some psychometric tests can help to understand the mechanism of failure among some children, and to apportion the source of failure between the two factors of visual impairment and reaction to the visual impairment. The visually impaired fail in psychometric tests to the extent that the tests are contaminated with vision. Hence a group with good performance in verbal tests will show a decline in efficiency in motor tests, and especially in perceptual-motor tests such as the pegboard and reproduction of Bender's geometric shapes. If the verbal and performance scales of the Wechsler-Bellevue test for children are compared, in the majority of cases and on average curves, there is a difference in favor of verbal scales which brings these subjects close to the "dyspraxic" group (Stambak et al, 1964). Analysis of the items of the Wechsler performance shows that, at a given group level, the tests failed are the arrangement of pictures, the code, the assembling of objects (Leger et al, 1967). The cubes test is in general done successfully, and this constitutes a fundamental difference between visually impaired children and sighted dyspraxic children; with the latter, the cubes test is often failed, whereas the performance of the visually impaired child is well below his verbal level in the Bender and pegboard tests.

The factors predicting such failure are acuity (particularly when it is below 1/10), and lack of motor autonomy of the visual apparatus in relation to the head (limiting the possibilities for exploration), and of the hand relative to the head and eyes. These factors lead to poor use of remaining vision. Ophthalmopathic conditions such as nystagmus, restriction of the visual field, etc., are also important factors, but so are early affective and educational experiences, to a degree far more potent when one considers their role in situations of lesser visual impairment (with acuities above 1/10).

Gazing Most Disturbed Motor Activity

Disturbances appear in varying degrees

Factors predicting failure

The emotional disturbance of visually impaired children sketched above is reflected in their attitude toward the sensory deficit. The well-adapted seek out and learn the best means of exploiting remaining potentialities and take a more or less satisfactory integration into the sighted world of school and shop. This favorable adaptation still does not prevent the adolescent from meeting with problems of professional integration which have not yet been resolved in France. But this is not our concern here.

Among the unfavorable adaptations, we note two types of negation of the handicap: the elusive attitude (a refusal to look, phobic withdrawal, flight into day-dreaming and autism); and the characteriological attitude leading to an impossible work choice (such as pilot, industrial designer, etc.). The former attitude is met with frequently in all degrees. The second can be normative when it is transitory and appears in a child becoming conscious of hitherto forbidden possibilities. Open aggression by these children is rare; these attitudes should be understood as a desire for liberation from environmental constraint, and used in an effort toward autonomy.

Adaptation difficulties stemming from the parents' attitude to education can be avoided through contact with the parents as soon as the sensory deficit is evident. It is important to prevent, or at least limit, maternal depression, and to establish guidance to prevent the usual sensorimotor and affective restrictions on the child. This guidance is systematically available in many countries; it is still practically nonexistent in France (16).

This guidance must take place during the entire preschool period and must end in as well adapted a school orientation as possible. Kindergartens for visually impaired children are rare, but it is often possible to admit the child into smaller classes of sighted children, allowing socialization even before integration into special classes. This admission requires acceptance by educators who must be informed and advised so that they neither overprotect nor exclude the child from his group. The choice among ink print, braille, or a mixture of the two is best considered in cooperation with an ophthalmologist. We have pointed out that the family is often hostile to the use of braille, as if the acceptance of braille were an inescapable admission of complete blindness. But, instruction in braille must be advised if the remaining vision is too poor or deteriorating. We do not think, however, that it should replace ink print so long as usable vision persists (2). It is very important to give the child threatened with total blindness a stock of visual experiences which allow him a better understanding of the world and of the printed page. Both are difficult to achieve for the child totally blind from birth.

The practice of encouraging rather than limiting the early experiences of the child, especially when walking has been achieved, generally results in the limitation of later tonicmotor and psychomotor disturbances in his behavior.

□ The main question is how to alleviate both adaptive and reactive difficulties to visual deficiency. First, the deficiency should be corrected as well as possible by optical means. Large-scale low vision clinics and services, like those in the United States, would allow optimal correction whenever possible, and should be developed in France (3).

The Visually Impaired Child's Attitude toward the Sensory Deficit

Unfavorable adaptations

When to use braille

Corrective Measures

□ In addition it is essential that the child's remaining vision be used to the fullest. This minimizes the consequences of the emotional disturbances associated with the sensory deficiency (nystagmus particularly); and it allows education in the function of gaze. Complete correction of nystagmus is practically impossible in many cases; yet it is well known that anxiety arising out of emotional disturbance reinforces it greatly. It is possible to allay such anxiety either through psychotherapy directly, or through relaxation treatment indirectly. The latter treatment has been observed to give favorable results for a whole range of disturbances, including nystagmus (Segur and Lairy 1962). Surely the techniques of gaze reeducation should be codified and made an integral part of the curriculum, at least during the first few years of school (4). Organic conditions cause some children to acquire only a global appreciation of images and to have difficulty with detail; others appreciate elements of the whole without the capacity to synthesize the discrete perceptions. With appropriate exercise it is possible to increase the capacity to apprehend a complex visual field in both groups of children. While this certainly does not increase visual acuity, it does significantly increase their perceptual capacity.

Disturbances existing during the school years justify the introduction of special programs to re-educate behavior: psychomotor re-education, rhythmic exercise, autogenic training (relaxation), dancing, sports, etc. (5). With the present state of affairs—that is, in the absence of early guidance—these programs should constitute the basic schedule of the first two years of special schooling, preceding the normal scholastic program. This will facilitate the acquisition of knowledge by allowing the visually impaired child to perform the complex tasks expected of him. This is still very poorly understood in France.

Finally, individual psychotherapeutic intervention may be necessary when education and re-education are insufficient. Psychotherapy should not be limited to the child alone, but must include his family, especially the mother. Quite often it is found that therapy of the mother alone will alleviate the child's difficulties substantially, and allow him to make a better adjustment to his impairment.

Special programs

1. The single exception is the Neuropsychiatric Service of the National Ophthalmological Center of the Quinze-Vingts Hospital, which has been operating since 1963.
2. Courses in braille are established for this purpose in certain special classes for severely visually impaired children.
3. The first low vision clinic is now being established at the Rothschild Hospital.
4. The education of the function of seeing is practiced in The Netherlands both with group exercises and individual exercises.
5. Psychomotor re-educational services have been instituted in some classes of visually impaired children.

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Medic Alert

The Medic Alert Foundation is a non-profit organization which provides medical protection service for persons with hidden medical problems that should be known in an emergency. Its purpose is to prevent inappropriate and sometimes fatal mistakes being made by persons administering treatment during an emergency. Non-recognition of a diabetic person is an obvious hazard in emergency treatment. However, other problems, such as allergies or persons on certain medications, can present the possibility of gross mistreatment if those in attendance are not aware of the condition.

All persons belonging to Medic Alert are issued a bracelet or chain emblem which has engraved on it their major medical problems, the telephone number of the Foundation's Central File which has a more comprehensive medical history of the person, and the serial number of that person which corresponds to their number in the central file. Data compiled in the central file is obtained through the application form used by Medic Alert on which all applicants are asked to list any medical problems, their physician's name and telephone, medications taken regularly, blood type, and nearest of kin. The central file can be reached at any hour by dialing the number on the emblem.

The Medic Alert Foundation has been endorsed by the American Academy of General Practice, The American Academy of Allergy, and the International Rescue and First Aid Association among others. A list of endorsing agencies will be provided by the Foundation upon request. Membership fees, which are for a lifetime, range from \$7 to \$25, depending on the metal used for the emblem. Application forms and cannisters for displaying application forms may be obtained by writing the Medic Alert Foundation, Turlock, California 95380.

The Upbringing of Blind Children in the Soviet Union

The aim of Communist upbringing is the total development of children and the raising of citizens devoted to the cause of Communism and their country, ready for creative work, and of the highest moral caliber. This aim is accomplished gradually, with due regard for the peculiarities and abilities of children at various ages. The proper upbringing of children with developmental anomalies entails special requirements regarding attitudes towards the child. This article examines the peculiarities in the family upbringing of blind children.

As public education embraces only a small proportion, about 10 percent, of preschool age, blind children family upbringing occupies a particularly important role. The most important special feature of family upbringing is the close emotional contact of the children with the parents—the very dearest people to the preschool child. This enables the parents to accomplish the Communist upbringing of their child.

Unfortunately, up till now, few parents could properly organize the upbringing of a blind preschool child. This is due to widespread peculiarities in their attitudes. The psychologist L. S. Vigotsky said that the family situation of the handicapped child is special not only because he lacks sight, hearing, etc., but because the parents see him as a "victim" and in consequence show him excessive love. Pedagogical attitudes towards him are different from those towards the normal child, expectations are lowered, and as a result the parents either try to do everything for him, often taking on themselves all the duties of the child, or, unable to understand his behavior, sometimes actually exclude him from their attention. In such cases the parents have a false idea of the aims and role of education of handicapped children, not knowing their capacity for development. The other common educational error is rooted in this same ignorance: the limiting of relations with neighboring children. These circumstances influence very negatively the formation of all facets of the blind child's personality: the stock of knowledge and ideas about the life around them is severely limited, the children develop immobility, apathy, lack of initiative, suffer from an inability to orient themselves in their surroundings, and become helpless.

□ Soviet typhlopedagogy has shown that the development of the blind child follows the same rules as that of the sighted child. He has the same need for movement and activity. He too, like the sighted, likes to play. This should be

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Family situation of handicapped child is special

Development of Blind Child Follows Same Pattern as That of Sighted Child

This paper is a slightly abbreviated version of the original, which appeared in the Soviet journal *Special School* (Spetsialnaia Shkola), Issue No. 2, Vol. 114, pp. 23-26, in 1965. The journal is published by the Institute of Defectology, Academy of Pedagogical Sciences of the RSFSR, in Moscow. The translation was made by Zofja Jastrzebska, Assistant Director, International Research Information Service, AFB, New York.

the central idea in the upbringing of the blind child in the family. He should be given the chance to develop his abilities.

Mothers make a great mistake when they limit the mobility and autonomy of their blind children: they grow up passive, incapable of creative activity. This has an adverse effect on the physical condition also: gait becomes shuffling, and all movements are shackled.

To avoid this it is necessary to allow the blind child to walk and run freely. At first, objects he could trip on should be kept out of his way. So that he will learn faster and better to orient himself in his room, the position of furniture should not be changed. The child becomes used to the appointed place for each object, and the things he uses should not be moved to different places; each object should have its proper place or the child will never learn to serve himself and play independently.

□ In teaching the child orientation, one should not lead him by the hand, but teach him to find his way independently to the kitchen, the hallway, and the bathroom. Parents should draw his attention to the cues by which he can himself find what he needs. Using the sense of smell ("Notice, how tasty it smells from the kitchen!"), touch (for example using a carpet as a pathway), hearing ("Do you hear how the water gurgles in the tap?"), he can be quickly taught to orient himself in familiar surroundings.

Riding a tricycle in a safe place is very good for developing his movements. The most important thing during this period is to create an aspiration towards mobility. Limitation of the movements of the blind child leads to his not developing in the whole area of motor activity, particularly in the mobility of the hand—the chief tool of learning of the blind—and fixed, stereotyped movements appear.

Knowledge should be imparted to the child in an interesting, playful manner. A very important task in the education of the blind is to acquaint him with the life and objects surrounding him.

At the preschool age the child accumulates primary knowledge of the world around him, he learns his native language, and his mental abilities develop to a large extent. The accumulation of concepts and knowledge by the blind is made more difficult by the exclusion of the function of vision. Therefore, it is the particular task of the parents to familiarize the child with the world of objects through the sense of touch, and if there is remaining vision, through vision also. It is important to teach the child to investigate objects, to create a desire to get to know the world, and not to be afraid of unknown things. Parents should arrange suitable situations: walks, excursions, etc. It is very important that they should not be embarrassed by the child's handicap, that they should stop at each unknown object and give him a chance to investigate it, direct his hand, point out important and characteristic features. In the process of familiarization with the environment parents should teach the child to recognize objects and events through cues available to the blind, and teach him to make the simpler mental deductions. It is important to teach him to recognize objects by the sounds they produce. When objects cannot be put into his hands, he may become acquainted with them through toys.

Mothers' errors

Teaching Orientation

Creating a desire for mobility

Creating a desire to know the world

Toys should be chosen with care. Proportions and surfaces should correspond to those of the real objects, so that the child does not develop false ideas about them. Sound-producing toys are good. Parents can make some of these themselves, for example, by putting dried peas inside a volleyball the child will be able to play with sighted comrades, locating the ball by sound.

From earliest childhood the child should be taught self-care and self-service. This is not only to make him independent. The development of the blind child's hand is a very important task. He will read and write with the hand. It should be physically strong and agile, and capable of light and delicate movements. In lacing shoes or recognizing the inner and outer sides of garments, the child trains the hand, and readies it for the study of braille.

Many games should be played to train the sense of touch. One example is the "magic bag": small toys and objects are put into the bag, the child takes one out, and tries to guess what it is. The games should be interesting and capable of attracting other, sighted, children.

□ In the area of labor and morality, attitudes toward one's own labor and the labor of others occupy the foremost place in the upbringing of the blind. Parents of blind children sin most frequently in this respect, freeing the child of all obligations, which necessarily produces in the blind a consciousness of his exceptional position, the idea that all adults and in general all the sighted should take care of him. Later this can grow into egotism and dependency. For this reason, while imperceptibly helping their blind children in their tasks, parents should teach them to manage independently the easier tasks of life and of self-service, strengthening the child's belief that he can achieve much and participate directly in the work of the whole family.

From his earliest years the blind child is surrounded by sounds and by music. Musical education provides one of the main means of aesthetic education for the blind. Children's music programs on radio and television, and tape recordings of children's songs, all enable the parents to teach the child to understand the world of music, to teach him to listen to the rhythm of life, to understand and to hear nature.

In the aesthetic education of the blind an enormous role is played by literature. Until the child learns to read the parents choose poems and stories which acquaint the blind with life. While reading it is necessary to discover and explain the words which are unknown to the children, and to acquaint them with the objects which stand behind the unknown words. A great part in aesthetic education is played by active reproduction—the learning of poetic works, and of songs.

Modelling and appliqué work should be widely used. They develop the hands, and prepare them for braille. Pastimes which acquaint the child with the tools of braille (writing pad and stylus) are useful, as are making and recognizing groups of dots in various positions. All this work prepares the child for school.

□ During the school years the role of the family does not diminish even though the child will enter a residential school. Parents should coordinate their activities with the demands of the school, to uphold and strengthen them. This

(Continued on page 62)

Teaching self-care

**Creating A Healthy Attitude
Toward Labor**

Aesthetic education

Family's Role During School Years

Placing a Blind Diabetic as a Computer Programmer

While the client who is the subject of this article has severe handicaps in addition to blindness, we think the account of his placement says something that applies equally to the placement of the blind person with no additional handicaps. Namely, that each of these placements is still a very individual and distinctive process. And must be approached as such. The Editors

A client, whom I shall call Jim, first came to the agency in 1962. He was 24 years old, married, and the father of two children. He had recently become totally blind as a result of diabetic hemorrhaging. His attitude could be described in one word—tremendous! Even though he had just lost his sight, he accepted it as something he had to live with, and he did not seem to experience the depression that usually accompanies the onset of blindness. He was sent to a rehabilitation center for training in adjustment to blindness which included counseling for personal adjustment, but not psychological.

□ When Jim became blind, he had had to give up a job as an engineering aide. When he returned from the rehabilitation center, I helped him to explore some reasonable job objectives. The many efforts to get his former employer to re-hire him were unsuccessful. He was a high school graduate and had attended the state university for two years. Insurance, resuming college (which I discouraged), and other kinds of work were explored but no decision was reached. In 1964 the case was closed when Jim decided to stay home and take care of the children while his wife worked as a secretary. Although the traditional roles in the home were reversed, Jim seemed content with the situation and spent his spare time trying to help others.

In April 1966 Jim returned to the agency and said that he wanted to go back to work. In the time that had elapsed since I had last seen him, his problems had multiplied. As mentioned previously, the client was a diabetic. He had been aware of it since the age of eight and had always kept it under fairly good control. He had gone into shock only a few times.

However, when he came to the agency the second time, his physical condition was not good. He was having trouble staying regulated on insulin, and had high blood pressure—compensated for to some extent by medication. Jim also had the serious kidney condition that many diabetics develop. In making an attempt to identify the physical problems, it should be noted that the client's doctor had told me in 1965 and the early part of 1966 that Jim would be healthier and live longer if he were working. I had always replied that we would not force Jim to ask for services, but that we were in contact with him and if he asked, we were ready to help him.

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Roles in Home Reversed

Client's physical condition had deteriorated

Although Jim had no diagnosable mental problems, there were many problems in the home. Jim's physician, whose partner was Jim's wife's physician, told me that if the client were not blind, his wife would probably divorce him. The basic problem was that Jim was staying home, rearing the children, doing the housework, while his wife was out earning a part of the income (Jim was receiving Social Security disability payments). The two had reversed roles and, while the client did not show any overt hostility about it, it was putting a strain on their relationship. The picture was complicated further because Jim's wife was seeing a psychiatrist. She would also call me occasionally and I always told her that when Jim asked for our help, we would give it.

□ When Jim returned to the agency in April 1966, I asked him if he had arrived at any decision about training for a specific job. We had recently received a great deal of information about totally blind people working as computer programmers. Computer programming requires a scientific mind and a good math background and a willingness to work hard, all of which the client had. I had talked with one of the men who pioneered the training of blind persons as computer programmers and mentioned this vocational area to Jim as a possibility. I gave him the information we had about the available programs, and suggested he study them. Later, he reported on what he had learned. We have never had a client who did his homework so thoroughly! When he had satisfactory answers to most of his questions, he reported that he was ready to take the first steps toward becoming a computer programmer.

Once Jim had made the decision to become a computer programmer, he took an aptitude test given by the training institution we had selected. He passed it. Getting Jim admitted was more difficult. The school selected was located in the north. Since Jim was a diabetic, he had to have insulin administered each day and his blood sugar tested regularly. We also wanted to be sure that, in case there were any physical complications during training, an internist would be available. We explained the situation to the school and asked for the name of an internist and for someone who could administer insulin during the week. The client administered insulin to himself on weekends. The school contacted the director of the state agency for the blind who discouraged them from accepting Jim, saying that they had had a bad experience with a diabetic who had been trained as a computer programmer. Therefore, the school was reluctant to admit Jim. However, after several telephone conversations, they agreed to supply us with the requested information and to accept Jim. Jim was also willing to take his chances.

Before Jim left for school, arrangements were made for his children to attend a day care center while his wife continued to work. At this time we also discussed with the client the termination of his Social Security benefits. He was told that he could work for one year and still draw Social Security. At that time, a re-evaluation of his claim would be made. Jim agreed and was trained with this understanding. All of the funds used for his rehabilitation came from the Social Security Trust Fund—the first case of this type to be carried out by the Agency for the Blind in this state.

Jim's 20 weeks of schooling passed without incident. He made excellent

Computer Programming Suggested

School reluctant to admit diabetic

Social Security Trust fund used for support

grades, finishing at the top of his class. Placement was the next problem.

If it could be avoided, Jim did not want to leave his home town. He was buying a home and his wife was employed. The couple led an active social life, had many friends, were well liked in their community, and were very active in their church. The training agency had told me that they would help with placement. They supplied us with a list of firms in the area that had computers and helped the client to develop a resume and fact sheet about his training. No other information was given nor was any other kind of help offered. When Jim returned home, we discussed placement. I immediately admitted to Jim that I could be of little help with this kind of job, since I was not well enough versed in computer languages to speak intelligently with potential employers. I suggested that he take the list the school had supplied and start calling on the firms that employed programmers. Needless to say, the idea of hiring a totally blind person as a programmer had never occurred to any of these firms and the client was told that he would have to sell himself. If he got his foot in the door and needed our help, he would get it.

□ Systematically, Jim arranged for interviews at a number of companies that had computers. His former employers again turned a deaf ear; a hospital that was installing a system wanted someone with experience to set up a new program. With several other firms, he had no better luck.

Jim finally secured an interview with a large local bank. He took several of the programs he had written during training to the interview. Although the bank's systems analyst found it difficult to believe that the client had done the work he presented, he was, at least, willing to discuss it. At this point, I was called in to talk with one of the vice presidents and the systems analyst. Since the client had apparently sold his ability as a programmer, I did my best to sell him as a person, explaining my ignorance of computers. I was asked about Jim's physical condition and said that he was a diabetic. Some of the bank officials knew the client's doctor and spoke with him about Jim's physical condition. The doctor was very honest. He told the bank officials that Jim did have very severe physical problems but that they would benefit from Jim's services regardless of the length of time he was able to work.

At this point, the officials told us that they were ready to hire Jim but that top management would have to be sold. The bank did not have a policy of hiring handicapped persons. We suggested that they not think of Jim as a handicapped person but as a man who had a skill they needed. Several weeks passed before Jim was notified to report for work—just two months after he had finished his training.

Before Jim and I could celebrate the successful solution of all our major problems, we were rudely awakened to the fact that they had just begun. The bank had an IBM 1401 computer, the machine on which Jim was trained, but was phasing it out in favor of the newer IBM 360. Jim had never seen the 360, let alone learned to operate it. He was expected to go with the bank's other computer programmers to an IBM school to learn the 360. The rest of the class was sighted and the instructor had never taught a blind person. But Jim learned the 360—with the aid of two tape recorders, a braille writer,

Client Himself Arranged for Interviews

Bank expresses interest

and staying up most of the night for 10 days! Manuals for the 360 were not available on tape or in braille. Nor was there a braille program for the model. Without these, Jim could not do his work.

□ I immediately set about trying to secure the necessary material. It was not easy. I spoke with the man at Washington University in St. Louis who had pioneered the training of blind persons as computer programmers; he had very little of the appropriate material. The training institute Jim had attended, which was then installing a 360, did not yet have the manuals and programs on tape or in braille. A national organization that does professional recording for blind persons had very little, but promised to record the information as quickly as possible. Several weeks passed, and still the recordings did not arrive. Meanwhile, Jim was getting more and more desperate for references he could read himself. The material could not be read to him.

Although the material was so technical that it was difficult to find readers, we finally did secure a few people who were willing to record some of the material. The agency supplied the tapes and recorders. A little folder called "the Bible" is an important tool in the operation of the 360; without it, the programmer cannot work. "The Bible" had not yet been brailled and would be useless on tape. An agency in Philadelphia was asked to braille it for us—the first time a braille copy had been made. Now it was available to all blind people. The same agency volunteered to do some technical recording for Jim; and a doctor in Maryland has done and continues to record material for Jim.

As I mentioned earlier, Jim also needed a braille program for the 360. IBM finally made one available after a long delay; the first one used in the southeastern United States. A 360-Brailier also had to be written especially for the client and the 360. It was done by the Medcomp Research Corporation in Cincinnati, an expensive and time-consuming job. But Jim had to have it in order to work. We literally had to blaze a trail in this area because there was not any material on the 360 available to blind persons.

In June 1967 Jim's case was closed. This does not mean that we have not had contact with him and with his employers. Of course, there have been problems, but none unsolvable. Securing new bulletins and data on tape or in braille is still difficult, but at least Jim now knows how to go about getting them. Bank officials say that Jim is one of the best programmers they have ever had. And Jim is as happy with them and his job as they are with him.

□ Jim looks well; his blood sugar is under control; and conditions at home have improved now that he is again the man of the house. He stopped receiving Social Security disability payments last winter and began contributing to the trust fund again—building up more coverage for himself and his family. Jim's rehabilitation was an expensive investment. But I do not think it can be judged in terms of money alone. A man has reclaimed his life. The small part I played has been one of the most rewarding experiences of my life.

Securing Material for the IBM 360

Little available in braille or on tape

Client's Health Improved

First Three Agencies Accredited by NAC

The Massachusetts Association for the Blind, the Rhode Island Association for the Blind, and the Cleveland Society for the Blind are the first agencies to receive formal accreditation under the National Accreditation Council for Agencies Serving the Blind and Visually Handicapped (NAC) national program to life standards of service for the nation's one million men, women, and children who suffer total or substantial loss of sight.

The three agencies were awarded their accreditation at the winter meeting of the Council's board of directors. Their accreditation makes the three agencies the first full, that is, voting, members of NAC. In announcing the Council's action, Dr. Arthur L. Brandon, president of NAC, commented, "The principal significance of accreditation is that it offers objective and professionally sound testimony to the validity and quality of an agency's services. By providing a ready means of identification of those agencies whose operations meet nationally recognized standards, accreditation builds public confidence, not only on the part of those who support the agency through voluntary gifts or taxes, but also among the blind and visually handicapped people who make use of the agency's services."

The standards that accredited agencies are required to meet include the basic aspects of agency administration and financing, as well as those specific programs that the agency offers such as education, vocational services, social services, orientation and mobility training, sheltered employment, rehabilitation centers, and library services.

About 50 other agencies in the field of blindness are currently in active stages of self-study, the first stage of the process, and many others have indicated their intention to begin these reviews during 1969. There are approximately 450 national, state, and local agencies involved in services for the blind in this country.

NAC has also made provision for the unique needs of such specialized organizations as schools for blind children and sheltered workshops by issuing separate self-study guides for these two areas.

First Full Members of NAC

Many agencies now in self-study phase

Accreditation: What It Can Mean For Residential Schools

Instruments based on standards delineated in *THE COMSTAC REPORT: Standards for Strengthened Services* (1966) provide a structure for the visually handicapped. These instruments, in the form of self-study and evaluation guides, provide a framework for agencies to compare their programs with an objective measure, thereby assisting them to recognize weaknesses in programming—as well as strengths. Accreditation, following the self-study, signifies that the agency is working toward, and is committed to a program of excellence. A recent symposium (Friedensohn, 1967) reviewed the meaning of accreditation to agencies working with the visually handicapped. Accreditation also has significance for education, and standards for education were developed and included in *THE COMSTAC REPORT*.

□ Education represents one of the more complex services for which standards were developed. Educational services for the visually handicapped are found in a variety of settings—residential schools, community day schools, agency classes; they serve a broad range, from infancy through adulthood; and they involve different programs, to meet the varied needs of parents, school-age children, adolescents, adults, the aged, the newly blind. Because each type of educational service has its own unique character, a common instrument based on the standards for education would be difficult to devise. As a beginning, the National Accreditation Council for Agencies Serving the Blind and Visually Handicapped elected to develop instruments for residential schools. This setting was selected for a variety of reasons. Residential schools tend to be more closely identified with the field of services to the blind than do day school programs; programs among residential schools show greater similarity to each other than do programs found in other settings; residential schools tend to be self-contained, with more or less independent programs. In addition, some interest in seeking accreditation had been expressed by residential school administrators. The recently published *Self-Study and Evaluation Guide for Residential Schools* (1968)* provides the instruments for these

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A Common Instrument for Educational Accreditation Difficult to Devise

* The author was assisted in developing the *Self-Study and Evaluation Guide for Residential Schools* by an Advisory Committee on the Accreditation of Educational Services, consisting of: Dr. Jack W. Birch, Associate Dean of the University of Pittsburgh School of Education, chairman; Mr. Donald Blash, Director of the Institute of Blind Rehabilitation, Western Michigan University, Kalamazoo; William H. English, Principal at The Virginia School for the Deaf and the Blind, Staunton; Margaret Esch, Principal, Western Pennsylvania School for Blind Children, Pittsburgh; Dr. Ablett H. Flury (retired,) (formerly Executive Secretary of the Commission on Secondary Schools, Middle States Association of Colleges and Secondary Schools); Dr. Joseph J. Parnicky, Superintendent, Edward R. Johnstone Training and Research Center, Bordentown, N.J.; Leland C. Sanborn, Superintendent of New

schools to undertake the self-study required in the accreditation process, and residential schools now have an opportunity to seek accreditation from a specialized agency, the National Accreditation Council. This paper will focus on accreditation as it relates to residential schools.

□ The process of accreditation is familiar to most secondary schools in this country through the efforts of the six regional accrediting agencies. However, to date, few residential schools for the visually handicapped have applied for accreditation by these organizations. There are probably many reasons why they have not. The general field of educational accreditation does not encompass the unique needs of specialized school programs. The instruments used in the self-study required for accreditation of regular school programs are inadequate when applied to the evaluation of special programs. For some residential schools, accreditation from the regional accrediting agencies may have only limited returns. In addition, the breadth of the typical residential school program is not covered by the instruments utilized in the accreditation of secondary schools. Consequently, instruments developed for residential schools will be more meaningful and useful for the process required for accreditation.

Today, there is increasing interest in raising standards in all kinds of educational programs. This desire to meet accepted standards of excellence may be motivated in part by the availability of federal funds to those programs that are recognized as providing quality services. As more federal funds become available to special schools, there will be greater interest in seeking accreditation which provides recognition for a quality program and, in some instances, eligibility for governmental funding. Accreditation furthermore provides some assurance to legislative bodies that monies appropriated for state schools are channeled into programs recognized as meeting quality standards.

Further, accreditation has significance for parents, students, staff members of the school, and for other school systems. Parents are, more than ever before, demanding and working for quality educational programs for their children. Parents involved in working for improved educational services seek recognized and approved standards against which they can measure the program conducted by their school system. As they reach their final school years, students themselves are concerned as to whether their completed educational program will qualify them for admission to further education or to the employment market. They as well as their parents are assured when they know that their school meets standards established for similar programs and is accredited by a recognized agency.

Accreditation becomes more important as society becomes more mobile. Students who transfer from one school to another encounter difficulties when programs are unequal in quality. Accreditation, by providing assurance that certain minimum standards are met, facilitates reciprocity between schools, assures the receiving school that a certain degree of quality has been main-

Why Seek Accreditation?

Raising standards

Transferring from school to school

York State School for the Blind at Batavia. Publication of the *Guide* was assisted in part by grant No. 8-8023 from the Office of Education, U.S. Department of Health, Education, and Welfare.

tained in the program of the sending school, and that the work a student has completed meets minimum standards.

As visually handicapped students, particularly at the secondary level, transfer to community schools, accreditation of the residential school indicates that certain minimum standards have been met. This movement between residential and public schools will probably increase, and accreditation will provide assurance of quality programming for both types of schools.

Accreditation also assures teachers and other school staff members that they are acquiring experience in a quality setting. Good staff members are attracted to quality programs. In addition, certain professional organizations recognize experience in accredited and approved programs as necessary for full certification and/or membership. Institutions for further education see accreditation as a mechanism for judging the product of the residential school and admit graduates without additional evaluation.

Additionally, the process of seeking accreditation provides particular benefits to the school through the careful and critical examination of the total program during the self-study process required for accreditation. It provides a stimulus and a mechanism for working toward program improvement.

□ For any school undertaking the self-study, the most crucial tasks are: arriving at a statement of its philosophy and objectives; and examining the needs and characteristics of its students. If the staff members of the school wish to obtain maximum benefit from the self-study, these two parts of the *Self-Study and Evaluation Guide for Residential Schools* must be carefully and thoughtfully prepared, and all members of the staff must be familiar with the completed documents. Every aspect of the school program is appraised in terms of what the staff of the school consider are its own unique philosophy and objectives, whether the program provided carries them out, and whether the program meets the needs of the students currently enrolled.

Every school operates on a philosophical base, whether stated in writing or not. A superior school program may be found in those schools having a written statement, with its program planned and reevaluated periodically according to the stated goals. The statement of philosophy and objectives should be reviewed periodically by members of the staff, in order to modify and adapt it in accordance with the changing needs of the school's student body and changing societal conditions. Schools having no written philosophy and objectives will find this aspect of the self-study process a difficult, but ultimately rewarding experience.

Together with the statement of philosophy and objectives, an intensive study of the needs and characteristics of the students furnishes the base for the balance of the self-study. A section in the *Guide* provides a framework for systematically studying the clientele served by the school. Should some information on the characteristics of the students not be readily available, the school staff determines for itself whether such information is crucial to the completion of the self-study. However, the greater the investment of the school staff in gathering relevant data concerning the student body, the great-

The School's Philosophy and Objectives

The needs and characteristics of the students

er will be their knowledge about their clientele and the more objective their examination of the school program in terms of the needs of students.

All members of the staff involved in the school program should have an opportunity to review and become familiar with the statement of philosophy and objectives, and the data concerning its student body, in order to have a base for working through the remainder of the self-study. Opportunities to review these two sections as a total staff will lead to more meaningful staff relationships and greater communication. Special emphasis on arriving at an appropriate and acceptable statement of philosophy and objectives, and an intensive review of the nature and characteristics of its students, will help the school to see the interrelationship of various aspects of its program. The staff thus can determine whether the total program is consistent with the objectives of the school and the needs and characteristics of the students.

Since the curriculum offerings of schools vary, staff members should select those sections for the self-study which are appropriate to their program. All staff concerned with a particular area should work together as a committee on the evaluation of that area. Complete agreement may not be possible among all who are working on any aspect of the self-study. However, consensus among members of the staff should be sought, preferably by group discussion rather than through compiling individual responses into final form with no opportunity for free discussion among members of the staff. Open and free discussion among staff members concerned with particular aspects of the school program frequently leads to greater coordination and integration of efforts. This can often be the most worthwhile outcome of self-study. As current practices are evaluated critically by the total staff, a plan for improvement will evolve and staff members will set an attainable goal in their progress toward excellence.

The *Guide* provides a structure for completing the self-study. However, since programs vary and certain aspects unique to a particular program may not be included, space for "comments" is provided in all sections. Additional materials may also be submitted by the school so as to present a more complete and objective picture of its program. Thus, a variety of means is available to describe in detail the program of each school, and for staff and on-site review teams to determine to what extent the program meets standards.

□ When the self-study has been completed, the school prepares for the on-site review. All staff members should be aware of the plans and purposes of the review. It should not be considered an inspection or a critical examination, but rather an attempt on the part of a group of professionals to obtain an objective view of the school's program in order to help the school and its staff improve that program. It is crucial, therefore, that information not be withheld from members of the review team, but rather that all aspects of the school, both positive and negative, be shared with them. Any school engaging in the process of self-study and applying for accreditation should realize that no program is perfect and that all can be improved. Its self-study and the report of the on-site review team should provide guidelines for planning a realistic program of improvement.

All staff members should participate

Staff members should concentrate on their own areas

Benefits of the On-site Review

The interim the self-study and the on-site review may provide time to set into motion recommendations that will lead to improvement. Changes made should be reported to the on-site review team. Such a report provides an indication of determination to benefit from the self-study.

When staff members participate as members of on-site review teams, the school derives an additional benefit from accreditation. The opportunity of seeing and studying intensively the programs of other schools provides staff members with new ideas and stimulation. Problems faced by their own school may often be solved when staff members study other schools and solutions to problems. Participation in on-site reviews is time-consuming and requires the absence of key staff members from home base. But administrators should weigh these disadvantages carefully against the possibility that the experience for staff members may ultimately benefit their total program. Serving to a reasonable degree on on-site review teams should be viewed as part of the staff member's professional responsibility.

The value of the self-study will be greatly enhanced in those schools where the staff is willing to study the program objectively and to admit frankly its strengths and weaknesses. This procedure helps schools formulate steps which can be taken toward program improvement. But perhaps the greatest benefit of the self-study is the increased knowledge of the school gained by every member of the staff. A self-study providing feedback from the various subcommittees to the total staff increases the information each one has about the program and provides a framework within which each staff member can view his individual effort relative to the total enterprise.

Experience with accreditation provides the National Accreditation Council for Agencies Serving the Blind and Visually Handicapped with a mechanism for reviewing and revising standards delineated in *THE COMSTAC REPORT*. Standards are not meant to be static, but dynamic, changing in accordance with the needs of the times and of the institutions being accredited. As programs meet current standards, these should be raised to a higher level, to stimulate further program improvement. As societal conditions and expectations of schools change, so should standards be re-evaluated to meet new demands. As standards change, so will the format of the self-study and evaluation instruments change. These first instruments should be considered as pilot guides, to be reviewed and revised periodically to meet the changing needs of programs. Experience with the instruments, on the part of staff members participating in the self-study as members of an on-site review team, should provide direction for improving future editions. Thus, on-going evaluation becomes a part of the program in the accrediting agency as well as in each school.

Staff members should participate in on-site review teams

Standards must be dynamic

1. *THE COMSTAC REPORT: Standards for Strengthened Services*, Commission on Standards and Accreditation of Services for the Blind, New York, 1966.
2. Friedensohn, O., "A Symposium on Accreditation," *The New Outlook for the Blind* 61, 313-322, 1967.
3. *Self-Study and Evaluation Guide for Residential Schools*, National Accreditation Council for Agencies Serving the Blind and Visually Handicapped, New York, 1968.

References

The Kansas Listening Project: A Progress Report

In July 1967, the Rehabilitation Services Administration gave funds to the Kansas State Department of Social Welfare for an Innovation Project on improvement of listening efficiency in visually impaired individuals. The Project is now underway at the Kansas Rehabilitation Center for the Blind in Topeka.

This report summarizes the Project's first year. Fifty-one subjects have so far participated in the project. Each has been pre- and post-tested. Eleven have completed classes.

□ The testing shows an average rise of 17.45 from the pre-testing to the post-testing period, with an individual range of 0 to 44 percent. The test instrument used is the Brown-Carlsen Listening Comprehension Test. We are aware that this post-testing rise also measures the client's participation in the total Center program. Therefore, we have enlisted the services of the Northwestern Regional Rehabilitation Center for the Blind in Seattle, Washington to help determine how much a person's listening ability will improve when he participates in a program without listening classes. They have agreed to pre- and post-test about 100 clients during the next two years with the test instrument we are using, so that we can compare the two scores. This will enable us to further evaluate the effect that a Listening Program can have on the improvement of listening comprehension in the blinded adult.

Each client of the Center participates in three hours of listening classes each week. They are aware that this is an innovation project and are eager to participate. Many report that they "feel" they have become more aware of the world of sound since participation in Listening Classes. Terminated clients have reported how amazed they are with their ability to remember names, lists, and numbers better than before the classes. The Listening Project gets much of the credit.

We are watching particular areas of development such as immediate recall, following directions, and word interpretation as significant for vocational potential. The highest rate of progress seems to come in those who need the most help. The majority of those who made the lowest percentile scores on the pre-test seem to be making the most gains at post-testing. We have also found that the most progress seems to be in the area where the person originally showed the most weakness.

During the coming year we will continue to teach, evaluate, research, and refine classroom material and activities. We will become more deeply involved in abstract sounds and discrimination of same. At the end of next year we will have test results from the Northwestern Regional Rehabilitation Center for the Blind and be able to make further comparisons.

—Claudell Stocker

Pre- and Post-Testing

Three hours of listening classes a week

Plans for the future

A Typewriting Program for Visually Limited Children

In 1912, typewriting instruction was first established as part of the curriculum for Detroit's blind children. The pupils used the typewriter to carry out tasks assigned by their regular grade teachers. In June, 1914, Superintendent Charles E. Chadsey, in his annual report to the Detroit Board of Education, stated that, with the aid of the typewriter, it was possible for most blind children to work as effectively as their sighted classmates. Thus the typewriter has come to play an important role in the successful education of blind children.

Soon after the organization of special classes for the partially seeing in 1915, typewriters with large type were introduced. At first the machines were used by the teachers to prepare large-type materials for the children. Later, the teachers began to give the pupils typewriting instruction, and soon afterward assisted in the preparation of guides for teachers. The latest of these guides, *Typewriting for Visually Handicapped Children*, was published by the Detroit Public Schools in 1967.

□ Today, throughout the country, typewriting is considered an essential part of the curriculum for visually limited children. The child comes to realize that the machine is a wonderful device that can help him compensate for his handicap. Since he doesn't have to use his eyes when typing, his speed of writing can equal or even exceed that of normally seeing children. Typewriting helps to eliminate the frustration the pupil may experience in writing either braille or script. It increases his concentration and listening skills so that he develops ideas of accuracy, speed, and neatness. In addition, typewriting promotes self-improvement, self-reliance, and a sense of responsibility.

For the blind child, typewriting is an efficient means of written communication with sighted persons. Some visually handicapped pupils require typewriting in their vocations, and instruction begun as early as the fourth grade develops a foundation for advanced study. Above fourth grade, some visually handicapped pupils equipped with initial instruction can pass into regular secondary classes to perfect their typewriting ability.

As visually limited persons enter more varied fields of endeavor, such as teaching and computer programming, typewriting takes on added importance. The new braille electric typewriter which produces braille quickly and easily presupposes that the person operating it knows how to use an ordinary typewriter.

□ In spite of the many values of typewriting for visually limited persons, there is a dearth of published material to aid their teachers. Naturally, these teachers encounter specialized problems not met in working with sighted pupils.

The purpose of the article is to discuss certain of these problems: (1) the

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Typing An Essential Part of Curriculum

Why it is important

Few Aids for Teacher of Typing

necessary preparation before introducing visually handicapped children to the typewriter; (2) effective instructional procedures; and (3) means of overcoming common difficulties. Many of the suggestions given are drawn from the actual experiences of Detroit teachers of visually handicapped children.

□ In order to know when the child is ready to be introduced to typewriting, the teacher must have certain important data concerning him. Another requirement is having adequate equipment for his use, such as a typewriter in good condition and available to him for a sufficient number of periods.

The great majority of visually limited children who have reached the fourth grade are eager for the challenge which typewriting offers. By this time, the partially seeing pupil has had much experience in both manuscript and cursive writing and the blind child has learned to operate the Braillewriter. Children at this grade level already have considerable knowledge of spelling, and typewriting will increase their spelling power. Further, typewriting started at the fourth grade level, challenges the child to enlarge his vocabulary, increases his desire to try original writing, and develops his skill in letter writing. At the same time, he is learning definite, clear-cut rules of punctuation.

However, the time to begin instruction should be kept flexible. Some children are ready to type by the third grade, and a few children may not type successfully before the fifth grade. Lower than average intelligence, as well as poor muscular control and coordination, retard the development of readiness for typing.

Before introducing the typewriter, the good teacher examines each child's records and reports. She wants to estimate the child's physical condition and his degree of sight, including the amount of corrected vision, and his prognosis. Such records, supplemented by the teacher's own observation, will show that some children are able to do considerable copy work from large-type text. Other children, such as those with nystagmus or a restricted visual field, may have difficulty in keeping their place while reading the copy even though their vision is adequate. Still others are unable to see even the large type and shouldn't be expected to copy it.

□ Material to be copied should be large and clear enough for the child to read with ease. It is placed on a stand or copyholder, adjustable vertically as well as horizontally* so that the text is at eye level and can be brought as near to the child as needed.

Low-visioned children who are unable to read ordinary print should be supplied with typewriters which have standard keyboards but large or bulletin type (18 point) and heavily-inked ribbons in order to make the print clearly visible. Detroit blind pupils usually learn typewriting on machines with pica type. Electric typewriters are recommended, especially for young children and for those with orthopedic conditions, because the keys respond to the slightest touch and the carriage return is electrically operated. As Rowe (1967, p. 8) states, "The lack of coordination, particularly for lower grade students, is not evident when using electric typewriters."

* The Shafer Reading Stand which is available at the American Printing House for the Blind, has these features.

Preparation for Typewriting

When to begin instruction

Equipment Required

Large type typewriters

The children should be provided with adjustable typewriter desks and adjustable chairs. Small children will need footstools. A copyholder, as already mentioned, should be available to all children who are able to read material placed on it. Such equipment assists the pupils in maintaining correct posture at the typewriter. Correct position will do more than any other single factor to insure proper typing habits.

□ The teacher of visually limited children should be equipped with a standard typewriting guide. By also consulting a guide for instructing the visually handicapped, she will quickly discover the adaptations in procedures that are necessary.

The children should be introduced to the main parts of the typewriter as they have need of them. Blind pupils first need to examine the machine and then to learn the separate parts. The first lessons include identifying and locating each of the following: rows of keys, space bar, line-space lever, cylinder, margin sets, paper guide, paper release, and carriage return.

Typewriting instruction for visually limited children should introduce new skills very gradually. Explicit directions need to be given in order to make a definite impression on the child. Blind pupils usually require more motivation than partially seeing pupils because the blind pupils cannot see the results of their work. The teacher gives close attention to the children as they type in order to stress such habits as curved fingers and quick, sharp stroking. It is also important for the teacher to examine the children's papers every time they type in order to discover the kinds of errors they make and to give them help before the errors become habitual. Pupils who can see enough to read their papers should learn to evaluate their own work and to circle each error.

Daily instruction is given in order to insure steady progress. However, a practice period of 10 to 15 minutes may be long enough for beginners. A chart on which the pupils' names are listed and the number of lessons completed by each is a challenge to keep progressing.

As soon as the child has learned a few letters on the typewriter, he is encouraged to use them in forming and typing words. When he has learned all the letters on the keyboard, he may compose simple sentences, short paragraphs, and even a story. Or he might like to report a current event in his own words.

In order to provide enough practice, two other kinds of typing may well be introduced. The first is typing from dictation. All visually limited children should have many such opportunities since typing from dictation increases skill in composing at the typewriter. Composing, in turn, leads to easier and quicker expression. The second kind of typing consists of copying passages in books. Many low-visioned children will use large-type books when copying; the blind will use braille, records, or tapes. It is essential, however, that the material used be understandable to the child and within his reading ability.

Pupils need to know and use all parts of the machine. For example, as soon as a child can type a paragraph, he will use the tab bar or key for indenting. Later he will use the tab bar for typing words in columns, such as in spelling lessons. He should know how to center the material both vertically and hori-

Instructional Procedures

Supervising daily practice

Forming words

Encouraging the use of all the typewriter parts

zontally and how to make the required calculations. Typing outlines requires instruction and familiarity with regard to tab stops, the margin release, and the back-space key.

In addition to knowing and using the parts of the machine, the pupils are taught how to clean it and change the ribbon. The typewriter must be in good working condition when the pupil receives it. Thus, typewriter service should be available as needed, at least on a weekly basis.

□ Setting time limits for a typing activity encourages the pupil to compete with himself as well as with others in improving his accuracy and increasing his speed. When timed writings are first given, the pupils memorize the word, phrase, or short sentence to be typed. The one-minute writings may be given and the score from the best recorded. As more formal timed writings are introduced, the pupils calculate their own scores. Junior high school pupils enjoy timing one another during such writings.

At regular intervals, the teacher should give a test to determine the level of typing proficiency which each pupil has attained. These tests should not only be given in the elementary school but should be continued in junior and senior high school. The results of the tests give the teacher definite information as to the pupil's present skill and his future need for practice.

Many blind and partially seeing children have typewriters in their homes. Lloyd (1968) states that there is at least one typewriter in 40 percent of American homes. After the children have had approximately one school year of instruction, they are ready to type during out-of-school hours.

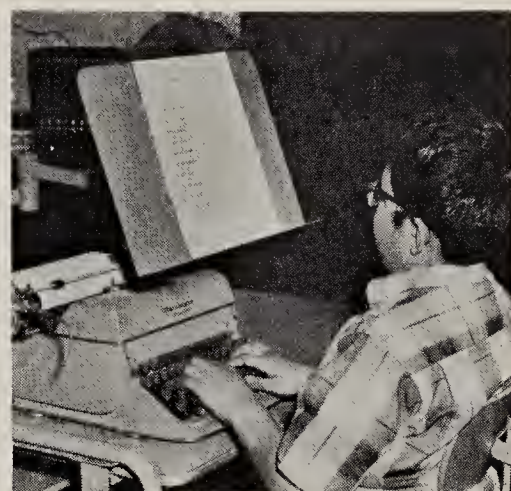
Near the close of the June semester, a Detroit teacher of elementary partially seeing children invited the children's parents to a "Type-In" in which the pupils demonstrated their typing proficiency. At the same time, the teacher distributed a "Parent's Typing Guide" in which she advised that the child type under supervision for at least 15 minutes a day during the summer vacation "to prevent him from losing his skill and to increase his accuracy and speed." In the Guide she included directions for setting the machine, assuming the correct position at the typewriter, copying material, and providing proper lighting. The Guide was accepted and used by the parents who were delighted to carry out the suggestions for the benefit of their children. In fact, in some cases the children made exceptional progress in typing.

Certain problems and difficulties are likely to arise as the pupils undertake typing. In order to avoid this situation, Detroit teachers of the blind and partially seeing have developed many helpful procedures and suggestions which are noted below.

□ 1. *Setting the machine and inserting the paper:* The teacher must be sure the child understands the necessity of setting or adjusting such parts as the line-space regulator, margin stops, and tab sets to be certain the machine is ready for typing before starting a day's lesson. The blind child, unlike the sighted, usually prefers to use the right hand to pick up the paper. He places the left index finger against the projecting edge of the paper guide before inserting the paper in the machine. Straightening the paper is difficult; the proper procedure should be carefully demonstrated and explained by the

Estimating Progress

Testing at regular intervals



Getting Ready to Type

teacher. Extra assistance and practice must often be given in helping the pupil to twirl the cylinder knob.

2. *Assuming the correct position at the typewriter:* The pupils may twist their feet or cross their legs instead of keeping their feet flat on the floor. Definite instruction, along with demonstration by the teacher, will provide them a model to follow.

3. *Finding the home keys without looking:* This is more easily accomplished if the correct position at the machine is assumed and the wrists are slanting with the keyboard; also, if the typewriter is near the edge of the table. The following procedure may be used: With both hands touch the space bar and then the first row of keys. Move the left hand to the home row, placing the little finger on "a", the next finger on "s", the second finger on "d", and the first on "f". Then bring the first finger of the right hand up to meet the same finger of the left hand. Skip the "g" and "h" keys and place the first finger of the right hand on "j", the second finger on "k", the third on "l", and the fourth on ";". The beginning child may check his position by touching the space bar and the first row of keys; also the two vacant keys "g" and "h" in the center of the home row. A piece of tape or an identifying mark may be put on the "g" and "h" keys to assist the beginning blind child in orienting himself at the machine.

□ 1. *Locating and stroking the keys:* The teacher should give definite procedures for locating each letter and symbol and then have the pupil touch the key before stroking it. In learning new letters and symbols the teacher and pupil call the strokes together (i.e. "fgjh space") three to five times. The pupil then completes the line, calling the strokes to himself and listening for the bell. The same procedure is repeated for a second line. The teacher should demonstrate the stroking so that the children can hear it, and are aware of the sharp, even strokes.

2. *Returning the carriage:* It is important for the teacher to demonstrate how to return the carriage with a firm throw. The blind child may need to place his hand on the teacher's to understand the hand position. Much time can be lost if the correct procedure is not used. The carriage should be moved smoothly and without hesitation; the left hand should be back in position by the time the carriage has reached the right side of the machine.

3. *Using the shift key:* It must be explained and demonstrated that the little finger opposite the hand which is making the stroke operates the shift key. The shift key is a hold stroke.

□ 1. *Making reaches correctly:* Reaches to the top row and those made with the third and fourth fingers are likely to be most difficult. Assuming the correct position at the typewriter and keeping the wrists up make the reaches easier. Exercises to strengthen the third and fourth fingers help; these may include closing and opening the hands and spreading the fingers. Typing words and phrases that contain the difficult reaches help the child to remember the location. The pupil should be reminded to "see" the keys with his fingers as he makes difficult reaches; this will prevent him from misjudging distances—typing "y," for example, instead of "6."



Beginning Lessons

Later Lessons

2. *Looking at the keys while typing:* This habit seems to be related to the insecurity of the child who has not mastered the material presented. Although Detroit teachers of the visually limited emphasize learning the keyboard by listening to directions and by "seeing the keys with the fingers", some low-visioned pupils may also need a keyboard chart placed near enough for them to read. This will encourage the pupils to hold their heads up and look at the chart rather than the keys. Copying material may also help in this regard.

3. *Reversing letters:* Certain children may stroke the "e" key instead of "i" and "d" instead of "k"; and also "m" and "n" are often reversed. Left-handed and poorly coordinated children make these errors more frequently. Extra practice by the pupil and perseverance by the teacher are required until the strokes are made correctly.

□ 1. *Typing columns of words and poetry:* Before typing words in columns, blind children need to know how the finished paper will look. The teacher should make a model of braille characters and show it to the child while explaining the procedure. The correct method for typing a poem is also more easily understood if a model of the finished poem made of braille characters is first presented to the pupil.

2. *Writing letters:* An explanation of the tab stops and indentations required for personal and business letters may not be enough for the pupils. Models of the letters in both large type and braille characters should be provided along with the explanations. The same procedure should be followed on the envelope for the placement of the name and address and the return address.

3. *Folding letters:* It is difficult for a young child to fold a letter. In demonstrating how to fold a business letter for a small envelope, a Detroit teacher of blind pupils uses three pieces of light cardboard of graduated sizes. Using standard letter paper, $8\frac{1}{2} \times 5\frac{3}{4}$ on the top part of the paper with the edge of the cardboard even with the top edge of the sheet before making the first fold, the $5\frac{3}{4} \times 5\frac{3}{4}$ piece is inserted before the second fold, and the smallest size, $5\frac{3}{4} \times 3\frac{1}{4}$ is used before the last fold. This same method is helpful with young partially seeing children.

4. *Increasing speed:* Since many visually impaired children cannot see to correct their errors, accuracy must have first consideration. As a group, the visually limited do their classwork more slowly than other children. However, when they have mastered the keyboard and related techniques, they should be encouraged and expected to increase their typing speed. In addition, they should learn to be faster and thus more efficient in carrying out such procedures as finding the paper, getting the machine ready for typing, and cleaning the machine. Graham (1967) suggests timing pupils in non-typing activities such as setting up new problems, scoring their timed writings, and cleaning and covering the machine. As he states, such activities are very important to the typist's total efficiency.

Other problems and difficulties will arise which must be dealt with at the time. Typing teachers in the business education department of the Detroit Public Schools are always most helpful in giving suggestions to the teachers of blind and partially seeing children.

Additional Lessons and Assignments

Increasing speed

As visually limited pupils discover what ease and speed they can complete their lessons and assignments on the typewriter, they realize that their effort and perseverance have been rewarded. Furthermore, these pupils look forward to using the typewriter for many activities at home and at work after leaving school.

- Graham, Gerald H. "Improving the Typist's Efficiency in Non-Typewriting Activities," *The Journal of Business Education* (December, 1965), 41: 107-108.
- Lloyd, Alan C. "Typewriting Futures," *Business Education World* (February, 1968), 48: 9-10, 24.
- Rowe, John L. "Possibilities for Business Education in the Elementary School," *National Business Education Quarterly* (Summer, 1967), 35: 5-10.

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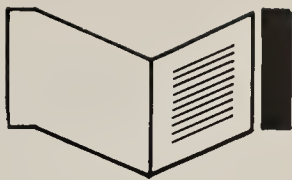
The Upbringing of Blind Children in the Soviet Union—Continued from page 44

applies particularly to the vacation period, during which they should maintain the daily schedule established at school and demand that the child participate in household tasks, and so forth.

Parents have a great role in the orientation of the child towards his future profession. It is very important to see, together with the child, the romance and the practical importance of his future profession.

Family upbringing—this is the resolution of the task of Communist upbringing within the framework of a family collective, taking into account the age and individual peculiarities of children. In the case of blind children it also implies taking into account the developmental peculiarities of children with visual handicaps.

Current Literature



A Program in Basic Communication Development for Retarded Blind Children, by Irene Blanchard and Celeste Beard. *The Journal of Special Education* (115 Thorndike Road, Philadelphia, Pennsylvania 19115), Vol. 2, No. 3, Spring 1968, p. 337-341. Report of an experimental program developed by the authors while working with severely retarded blind children at the Pacific State Hospital in Pomona, California.

Blindfolds Help Child Care Staff Know More About Students' Problems. *Perspective* (Illinois Department of Children and Family Services, 404 State Office Building, Springfield, Illinois 62706), Vol. 4, No. 3, September 1968, p. 14-16. Story of a unique four-week, 100-hour training program held last summer at the Illinois Braille and Sight Saving School.

She Walked through a Storm, by Alvin S. Goodman. *Challenge* (Pennsylvania Department of Public Welfare, Room 313, Health & Welfare Building, Harrisburg, Pennsylvania 17120), Vol. 11, No. 5, Sep-

tember/October 1968, p. 8-10. The story of Kathleen Titus, a recent graduate of Beaver College and an outstanding example of successful rehabilitation of the blind.

Composition through Typing: Instruction in Communication for the Blind, by Raymond Paul and Pellegrino W. Goione. *Exceptional Children* (The Council for Exceptional Children, National Education Association, 1201 Sixteenth Street, N. W., Washington, D. C. 20036), Vol. 35, No. 2, October 1968, p. 154-158. Article based on the authors' participation in a month long program organized by the New Jersey Commission for the Blind in Newark aimed at preparing the state's blind high school students for the difficulties encountered in college.

Educating the Blind Adolescent, by R. C. Fletcher. *The New Beacon* (Royal National Institute for the Blind, 224 Great Portland Street, London W1, England), Vol. 52, No. 618, October 1968, p. 254-259. The author is Headmaster of Worcester College for

the Blind. This article is based on a paper he presented at the biennial conference of the Association of Special Education held at Coventry in August.

An Experiment in Education; the History of Worcester College for the Blind 1866-1966, edited by Donald Bell. Hutchinson & Co. Ltd. (178-202 Great Portland Street, London W1, England), 1967, 80p. 15s. History of the first British school to provide more than elementary education for the blind.

A Marked House, by Jacob Twersky. New York, Thomas Yoseloff (Available from A. S. Barnes & Company, Box 421, Cranbury, New Jersey 08512), 1968, 248p. \$4.95. A new novel by the blind author of *The Sound of the Walls* and *The Face of the Deep*. *Your Sight; Folklore, Fact and Common Sense*, by Bernard Seeman. Little, Brown and Company (34 Beacon Street, Boston, Massachusetts 02106), 1968, 242p. \$5.95. Chapter 23 (p. 175-182) discusses problems connected with blindness.

M. M. R.

News in Brief



■ Physicians in the Department of Ophthalmology of the New York Hospital-Cornell Medical center are using a battery of electronic tests to diagnose complex visual disorders.

The electronic testing devices, which measure differences in electrical potential

generated within the eye, give a complete profile of each cellular component of the retina.

The tests are said to be particularly valuable in diagnosing disorders in infants, the deaf, the blind, and the brain-damaged.

■ The name of the National Institute of Neurological Diseases and Blindness is in the process of being changed.

The Act of Congress that established the new National Eye Institute changed NINDB's name by eliminating "blindness" from the title.

Later, another bill was introduced changing the name to the National Institute of Neurological Diseases and Stroke. This bill was passed by Congress on October 4, 1968.

■ Copies of the new National Institute of Neurological Diseases and Blindness Publications List are now available from the NINDB Information Office, National Institutes of Health, Bethesda, Md.

The new Publications List includes titles both for the general public and for people in the medical and para-medical professions.

■ Questions and Answers—Medical Assistance—"Medicaid," has just been published by the Medical Services Administration of the Social and Rehabilitation Service of the U.S. Department of Health, Education, and Welfare.

This 32-page pamphlet describes fully the federal-state programs of medical assistance known as Medicaid. It includes all of the changes in the program required by the 1967 amendments to Title IX of the Social Security Act.

Copies of the pamphlet are available, for 15 cents each, from the Superintendent of Documents, U.S. Printing Office, Washington, D.C. 20402.

■ The American Association of Workers for the Blind has announced the formation of four new state chapters.

They are Michigan, Donald Blasch, president; South Carolina, Dr. Fred L. Crawford, president; Tennessee, William J. Ferrell, president; and New York, Harold Richterman, president.

In New York, the AAWB state chapter was formed when an existing group, the New York Federation of Workers for the Blind, voted to become a chapter.

AAWB has also announced that Charles Gallozzi has replaced George Keller as president, and Thomas Herron has replaced Paul Thompson as treasurer, of the District of Columbia-Maryland Chapter.

■ The Lorain County Center for the Sightless, Elyria, Ohio, has begun to have

selected clients taught first aid techniques by Red Cross instructors.

For more information about the program, write Robert DeForest, executive director, Lorain County Center for the Sightless, 330 Third St., Elyria, Ohio 44035.

■ The Rev. Wesley G. Price became executive director of the Protestant Guild for the Blind, Boston, on January 1. He succeeded George A. Raiche, who had held the position since 1961.

■ Howard Hanson, director of the South Dakota Service to the Blind and Visually Handicapped, has been elected president-elect of the National Rehabilitation Association.

Mr. Hanson is currently serving also as president of the American Association of Workers for the Blind.

■ Robert H. Barnhart has been named principal investigator of a demonstration project entitled "The Training and Placement of Blind Persons in Service Jobs in Hospital Settings."

The project is being conducted by the American Foundation for the Blind with funds from the Social and Rehabilitation Service of the U. S. Department of Health, Education and Welfare.

Prior to his appointment, Mr. Barnhart served for two years as a planning associate on the staff of Economic Opportunity, Inc. in Atlanta, where he worked on anti-poverty programs in the field of health and welfare.

■ William J. Greene, Jr. has been appointed director, Public Education Division, of the American Foundation for the Blind.

In 1964-1965, Mr. Greene served as director of public relations for the United States Pavilion at the New York World's Fair. More recently, he has been employed as a public relations consultant for the McGraw-Hill Book Company.

■ The American Association for Health, Physical Education, and Recreation has

expanded its Project on Recreation and Fitness for the Mentally Retarded to provide physical education, recreation, health, and safety instruction for children with any handicapping condition.

Some of the Project's activities are preparing leaders, conducting research, coordinating efforts of interested organizations, and interpreting the needs in these areas to professional and lay workers.

The Project also provides direct services to schools, residential facilities, day care centers, and concerned agencies.

For more information, write Dr. Julian U. Stein, Project on Recreation and Fitness for the Mentally Retarded, 1201 16th St., N.W., Washington, D.C. 20036.

■ The Howe Press has announced that the price of Perkins Braille has been raised from \$90 to \$100. The increase in price—the first since 1955—was caused by increased production costs.

■ Prince George's General Hospital in Cheverly, Maryland, has introduced a program which will help disabled persons prepare for jobs before leaving the hospital.

The program is based on experience in other hospitals which indicated that patients who were depressed about their future prospects were less responsive to medical treatment than were those who began job training and counseling before their discharge.

■ David L. Bollschweiler has been named national representative for the 207,918 disabled persons rehabilitated during fiscal 1968 by the State-Federal rehabilitation program.

■ The Delta Gamma Foundation is again offering summer scholarships for training as orthoptists and teachers and consultants for visually handicapped children. The deadline for applications is April 1, 1969.

For more information, write Mrs. Thomas D. Rush, 9 Inwood Oaks, Houston, Texas, 77024.

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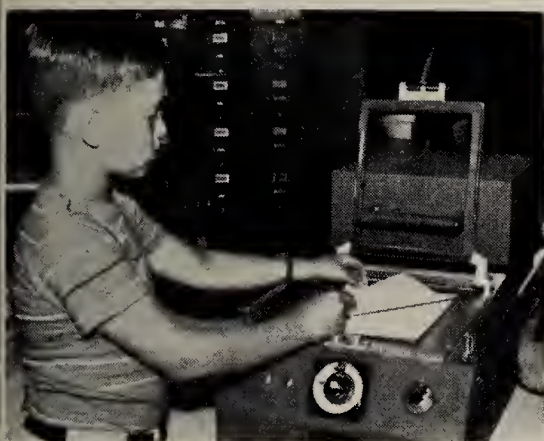
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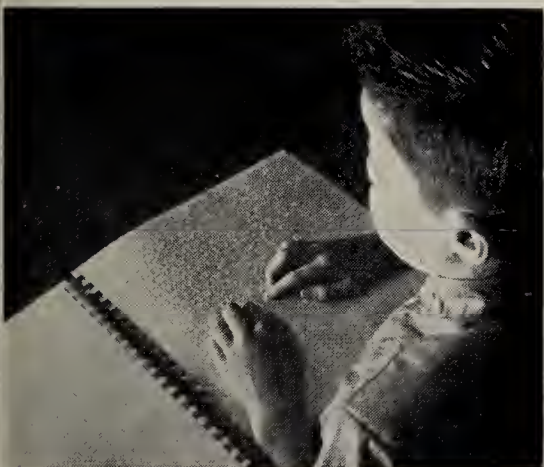


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Static and Mobile Balancing Performance of Blind
Adolescent Grammar School Children

J. A. Leonard

The Alameda County Placement Project: A Final Report

Kris Winters

March 1969 Volume 63 Number 3

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Static and Mobile Balancing Performance of Blind Adolescent Grammar School Children

□ Why study the balancing performance of blind children? It is an easily verifiable fact that balance is impaired when the eyes are shut, and the performance of a blindfolded tightrope walker is considered an astonishing feat.

How does blindness impair balancing? In what ways can balancing be performed with full efficiency under nonvisual control? For us the question was posed initially while we were evaluating an ultrasonic guidance device for the blind (Leonard and Carpenter, 1964). We had been told that blind children find balancing difficult. Mobile balancing, or rail walking, it occurred to us, might provide an excellent miniature mobility situation in which to study sensory retraining. Such training plays a considerable role in work with blind people, and relatively little is known about the general principles involved.

The balancing ability of blind children is of interest in itself, and as a special case in the general field of sensory retraining. In order to compare performance quantitatively between blind and sighted, and to assess the effects of training, it is essential to have various indices of performance.

□ We had hoped to start with a study of training in mobile balancing, but we found it necessary to go back one step and carry out some normative work. It is this that is reported here. To the best of our knowledge, there is no previous research in this field. Graybiel and Fregly, who have developed a new test battery, recently summarized the general work on tests for ataxia (1965). Our own procedure is very similar in principle to theirs; we adopted one extra measure—the width of the subjects' shoes.

Interpretation of these results is crucially dependent upon the definitions adopted. For static balancing we accepted only the scores of Ss who managed to perform to criterion on a width of beam equal to or less than the width of their shoes. The criterion measure was that width of beam on which Ss managed to maintain themselves for three consecutive periods of 1 minute each. For mobile balancing we were concerned with the number of complete traversals of a beam 2 inches wide and 10 feet long.

We differed from most other workers in that we allowed our blind Ss to perform under conditions normal to them—that is, using whatever residual sight they had. We did this for two reasons. First, we considered that blindfolding a child with any degree of residual vision not only puts him under a form of stress, but also makes him perform under unnatural conditions. Second, we were interested in the role of residual vision as a variable.

We have not tested the mobile balancing ability of sighted children, because at this stage we do not expect to gain much from such a comparison.

J. A. LEONARD

J. A. Leonard is a member of the Medical Research Council in the Department of Psychology of the University of Nottingham, England.

Normative Work Needed

Interpretation dependent upon definitions

Ss	Median	Range
Blind boys	15 $\frac{3}{4}$	12-20 $\frac{1}{4}$
Blind girls	15 $\frac{1}{4}$	12-19 $\frac{3}{4}$
Sighted boys	14	11 $\frac{1}{4}$ -18 $\frac{3}{4}$
Sighted girls	14 $\frac{1}{4}$	12-18

TABLE 1
Median Ages and Ranges

□ Data presented here are for 47 blind boys, 54 blind girls, 59 sighted boys, and 55 sighted girls. (Thirty-three other blind Ss were given some but not all of the tests, were not able to balance at all or were excluded by our definition of balancing, or had been used for another experiment.) Blind Ss attended the two residential grammar schools for the blind; the sighted Ss were from a local grammar school.

Median ages and ranges are given in Table 1.

Information about degree of vision was obtained in collaboration with school authorities. Table 2 shows the breakdown adopted and the observed incidences. There are many difficulties about this type of categorization (for instance, it does not allow for variations in field size).

The median for boys was 2 and for girls 1. When comparing the performance of boys and girls, it should be remembered that there were almost twice as many totally blind girls as boys in the sample.

All Ss had the width of their shoes measured and were given a pretest and the static balancing test. Blind Ss also received the mobile balancing test, several weeks after the static test. Blind Ss were tested under their normal condition of vision—that is, without the use of a blindfold.

Shoe width: Both shoes were measured to determine the widest point of the sole. Where applicable the wider of the two measures was used.

Pretest: All Ss were asked to stand on the floor of the test room with their two feet side by side, on one foot at a time, and with their two feet forming a straight line, heel to toe. Each test was given for 30 seconds. The experimenter noted the time (if the test was not completed) and the number of "wobbles."

Static balancing test: Apparatus for this test consisted of several 1" x 3" x 5' hardwood boards, plus one 3/4" wide and one 1/2" wide board. By clamping together an appropriate number of boards we could make up a range of widths on a baseboard.

S was asked to stand on this "beam" and allowed to become steady by holding the experimenter's hand. Timing started from the moment the hand

Method

Procedure

Category	Description	Observed Incidence	
		Boys	Girls
0	No perception of light	11	20
1	Up to and including perception of light	10	8
2	Up to and including hand movements	4	4
3	Up to and including counting fingers	3	8
4	Up to and including 3/60	8	6
5	Vision better than 3/60	11	8

TABLE 2
Categories of Vision and Observed Incidence Among Blind Ss

was released. A combination of limiting and bracketing techniques was used to arrive at the score. Heel-to-toe position of feet was required, and S had to remain upright. Apart from this, there were no postural constraints.

Mobile balancing test: A 2'' x 3'' x 12' hardwood beam resting on two brackets was used for this test. The first 2 ft. served as a steadying base. Ss steadied themselves by holding onto the back of a chair. Timing started from the moment of release. Ss were allowed 10 attempts to traverse the full length of the beam. Whenever they came off the beam, they had to begin again. Ss could take whatever stride they liked, but they had to place their feet in line with the beam. Hence, the feet were in "heel-to-toe" position.

□ Ss were placed in one of two categories: (1) all those who scored 30 seconds on all three balancing tests (including those who had wobbles); (2) all others. No S failed to do the first of the pretests.

Static balancing test: The score taken was that width on which S was able to maintain himself for three consecutive 1-minute periods.

Scoring

		I	II
Blind	Boys	30	17
	Girls	25	29

TABLE 3
Pretest Results

														<i>Inches</i>										<i>Total</i>					
															$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2	2 $\frac{1}{4}$	2 $\frac{1}{2}$		2 $\frac{3}{4}$	3	3 $\frac{1}{2}$	4	
<i>Blind</i>																													
Boys																		1	6	1	6	1	<u>10</u>	6	12	3	1	47	
Girls																			2	6	17	0	<u>16</u>	1	11	1	0	54	
<i>Sighted</i>																													
Boys	2	12	<u>22</u>	3	19											1					59								
Girls	3	7	14	<u>30</u>		1															55								

TABLE 4
Static Balancing Scores

Mobile balancing test: The number of completions and the time to complete were the scores taken.

Shoe width: This measure was taken to the nearest 1/8 in. with a pair of specially made callipers. A difference score (D) was obtained for the difference between shoe-width and static balancing score. Note that no S with a negative D score is included in the presentation.

□ Pretest results for blind Ss are shown in Table 3. Note that the boys did better than the girls, but not significantly so. There were no category 2 cases for the sighted children.

Results

Static balancing: Distributions of scores for blind and sighted Ss are shown in Table 4. The medians for blind boys and for blind girls was 2 1/2 in., the two distributions being rather similar. For sighted boys it was 1 in., and for sighted

TABLE 5a
Shoe Width

														<i>Inches</i>	
	$2\frac{7}{8}$	3	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	4	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	Total	
Blind boys						4	6	6	<u>12</u>	10	3	4	2	47	
Sighted boys				1	4	12	9	<u>11</u>	11	7	2	0	1	58	
Blind girls	0	2	6	13	<u>14</u>	10	6	1	2	0	0	0	0	54	
Sighted girls	2	5	11	17	10	2	1	1	0					55	

girls $1\frac{1}{2}$ in. The difference between sighted boys and girls is not significant on a median test.

There was a clear difference between the scores of the sighted and the blind children.

Shoe width: Table 5a shows the distributions of shoe width for all Ss. Boys' shoes were wider than girls', with little difference between blind and sighted Ss.

Table 5b gives the distribution of *D* scores for all Ss. Note that a *D* score of zero means that the S's shoes were as wide as the width of beam scored on the static balancing test. The larger this score, the more of the S's shoe protruded over the beam. This score may, therefore, be considered an index of efficiency. There was a small, but not significant difference between the medians of blind boys and girls— $1\frac{3}{8}$ in. and $1\frac{1}{8}$ in. respectively. The sighted boys' median was $2\frac{5}{8}$ in., the girls', 2 in.; on a median test this

TABLE 5b
D Scores for All Ss

<i>In.</i>	<i>Blind Boys</i>	<i>Blind Girls</i>	<i>Sighted Boys</i>	<i>Sighted Girls</i>
0	1	1		
$\frac{1}{8}$	0	0		
$\frac{1}{4}$	1	5		
$\frac{3}{8}$	1	3		
$\frac{1}{2}$	3	2		
$\frac{5}{8}$	3	6		
$\frac{3}{4}$	0	2		
$\frac{7}{8}$	2	1		
1	7	5		
$\frac{1}{8}$	1	<u>8</u>		
$\frac{1}{4}$	2	5		1
$\frac{3}{8}$	<u>4</u>	7		1
$\frac{1}{2}$	2	5		3
$\frac{5}{8}$	4	0		6
$\frac{3}{4}$	2	2		8
$\frac{7}{8}$	6	0		8
2	0	1	4	<u>4</u>
$\frac{1}{8}$	2	0	2	5
$\frac{1}{4}$	1	0	3	4
$\frac{3}{8}$	1	0	8	4
$\frac{1}{2}$	1	1	10	3
$\frac{5}{8}$	1		<u>8</u>	3
$\frac{3}{4}$	1		10	2
$\frac{7}{8}$	0		6	3
3	1		4	
$\frac{1}{8}$			0	
$\frac{1}{4}$			1	
$\frac{3}{8}$			1	
$\frac{1}{2}$			1	

difference was highly significant. There is, of course, a clear difference between sighted and blind Ss. It is important to note that there is little difference between sighted and blind Ss' shoe width, and that there is a difference in balancing scores. We would expect to find a difference between sighted and blind, but would one necessarily expect the difference between sighted boys and girls? It seems that the boys were more "efficient" than the girls, but that this effect was more marked with the sighted Ss.

Mobile balancing test: Distributions of completion scores are shown in Table 6. The median for boys was 4 completions; for the girls it was 2. On a median test this difference was significant.

Concerning time to complete it, it must be remembered that this was worked out as a median time for the number of completions achieved by each S and may not be a very reliable measure. The median for the boys was 5, with a range of from just over 3 to just over 22 seconds; the median for the girls was 7 seconds, with a range from 3 1/2 to just over 35 seconds.

□ We plotted a number of apparently interesting interactions between scores. No pattern was found between static balancing and shoe width (or D score within each of the four groups), between age and balancing scores, between degree of vision and static balancing score, or between pretest scores and degree of vision.

However, for the blind population patterns were found which showed relationships between degree of vision and mobile balancing, between static and mobile balancing, and between the pretest score and both balancing scores. Most of the relationships seemed to be one way—for example, a high degree of vision appeared to be necessary to achieve a consistent mobile balancing score, but it was not sufficient.

To test the significance of these effects, the data were cast into 2 x 2 tables for boys and girls, separately and subsequently combined. These are presented in Table 7. Chi square tests were applied to the combined tables. The one-tail levels of significance were accepted.

Table 7a shows the relationship between vision and mobile balancing. Ss were classified according to being in vision grades 0 to 2 or 5 to 10, and having mobile balancing scores from 0 to 4 or 5 to 10. There is a strong indication that vision below "counting fingers" is associated with poor mobile balancing ability. To achieve consistent performance, vision of counting fingers and better appears to be necessary, but not sufficient. It is suggestive that all but one of the 15 subjects with high vision and low mobile balancing score appear to have a history of some form of nystagmus, but further clinical information on this point is required. All the same, the girls' poorer performance on mobile balancing may, therefore, be due to the larger incidence among them of low vision grades and nystagmus.

Interactions

Degree of vision is related to mobile balancing

	0	1	2	3	4	5	6	7	8	9	10	Completions
Blind boys	9	5	6	0	5	3	2	3	4	7	3	47
Blind girls	16	10	8	5	1	3	2	1	2	4	2	54

TABLE 6
Mobile Balancing Scores

TABLE 7
2 x 2 Contingency Tables

(a) Mobile Balancing				(b) Static Balancing			
Vision		0-4	5-10	Mobile		2	0-2
	0-2	49	8		0-4	49	16
	3-5	16	28 $\chi^2 24.51$		5-10	13	23 $\chi^2 13.46$
(c) Pretest				(d) Pretest			
Static		II	I	Mobile		III	I
	2	34	28		0-4	40	25
	0-2	12	27 $\chi^2 4.60$		5-10	6	30 $\chi^2 17.04$

Table 7b shows the relationship between mobile and static balancing scores. For static balancing we took 2 inches as the dividing line because this was the width of the beam used for mobile balancing. Poor mobile balancing performance was associated with a large static balancing score and vice versa. Although this effect is significant, there are sufficient cases in the remaining cells to suggest that this too is not a simple relationship. The point is of some interest because it has a bearing on the validity of our mobile balancing score. It can be argued that choice of a different beam width for mobile balancing would have given a different result.

Table 7c shows the relationship between pretest and the static balancing scores, and Table 7d, that between pretest and mobile balancing. Since we have demonstrated an effect between the two balancing scores it is not surprising that both scores are related to a third. The fact that pretest predicts better for mobile balancing is borne out further by the comparison of the separate tables for boys and girls; they are almost identical for mobile balancing, while the boys show much greater effect for static balancing.

Table 8 is a summary table of median scores.

□ The findings may be summarized as follows:

Blind Ss required a wider beam width for static balancing than sighted Ss. Degree of blindness did not affect static balancing performance. There

Discussion

TABLE 8
Median Scores: Summary

	Blind		Sighted	
	Boys (N = 47)	Girls (N = 54)	Boys (N = 59)	Girls (N = 55)
Age	15¾	15¼	14	14¼
Shoe Width	3⅞	3⅞	3¾	3¼
Vision	HM	PL		
Static balancing	2½"	2½"	1"	1½"
D2-4	1⅜"	1⅞"	2⅝"	2"
Mobile balancing (a)	4	2 (out of max 10)		
Mobile balancing (b)	5 sec	7 sec		

was a tendency for boys to require less "beam under their feet," relatively, than girls, and this effect was more marked for the sighted than for the blind.

Mobile balancing performance was related to degree of blindness and to the score obtained for static balancing.

The pretest given on the floor was a good predictor for both balancing tests, more so for mobile balancing.

□ Of these findings, the most immediately interesting concerns the relationship between static balancing performance and vision. The results show that there was no relationship between degree of residual vision and ability to balance among blind Ss, but that there was a clear difference between sighted and the blind Ss on that score. Even if we take into account that of the 16 blind Ss whose scores overlapped with the sighted, 10 had residual vision of counting fingers and better. This is still a startling finding; it suggests strongly that whatever it is that vision contributes to static balancing performance it is not likely to be found by reinstating a simple visual cue such as a fixation mark for the head. And this is precisely what our concurrent laboratory work with adults appears to show. The scores for balancing with and without sight are very similar to those of the sighted and blind groups reported here. But at the time of writing we had not been able to achieve the equivalent of fully sighted static balancing performance by the reinstatement of simple cues. (Dickenson and Leonard, 1967; Dickinson, 1967).

Another suggestive line comes from differences between sexes. Perhaps it is not surprising to find that there is a difference in shoe width between boys and girls. But it is interesting to note that the *D* score medians were larger for boys than for girls, and that the difference between the medians was larger for sighted boys than for sighted girls. Now this may mean no more than that the boys' shoes were different from girls' shoes, and that this difference is somehow more relevant to sighted than to blind balancing. But it could also point toward one of the motor aspects of maintaining balance, and the most obvious candidate here is ankle strength, boys having presumably stronger ankles than girls. On this argument, balancing in the absence of vision is brought about without control of forces exerted at the ankle; control in the presence of vision makes use of the ankle. The stronger the ankle, the narrower the relative beam width required. Hence there is little effect of ankle strength in the case of blind Ss, but there is an effect for sighted Ss. Strength of ankle should be considered in future work.

Turning now to mobile balancing, we are on somewhat weaker ground, largely because we were able to test with one beam width only. There were administrative reasons for this as well as one simple practical consideration. It is relatively easy to ensure the required foot position in static balancing, regardless of beam width. In the case of walking along a rail, this is much more difficult when the beam becomes much wider than 2½ inches; the gait then tends to become rather different. We did, however, carry out some observations with a 4-inch wide beam; we do not believe that our results would have been very different had we taken a wider range of width. Thus, although we did find a relationship between static balancing score and mobile

Difference between Sighted and Blind in Static Balancing

Boys scored higher than girls

balancing score, the effect of residual vision was apparently the stronger. Taken together with the observation of Ss performing this test, one is driven to the conclusion that ability to maintain balance per se is only one component in this skill. Ability to know with some degree of precision where to put the foot down next is probably equally important, and it looks as if that ability could be provided by relatively small amounts of vision. Again, this is in line with preliminary laboratory work.

Before leaving the discussion on mobile balancing it is worth noting once more that our mobile balancing score put a premium on consistent performance. Our results do not support the claim that totally blind children cannot perform at all on a mobile balancing task; of the 31 totally blind Ss, 9 achieved three or more completions, and only 12 did not achieve a single completion.

Last, there are the surprising relationships between pretests and main tests, particularly with mobile balancing. Perhaps this is less surprising when one considers the activity pattern in mobile balancing which requires the ability to balance on one foot while the other is brought forward.

The most general finding is that none of the relationships found are particularly strong, and that nearly all of them are one way only. Poor performance on mobile balancing can be predicted from the vision grading, but a high vision grade is no good predictor for good mobile balancing. A low score on static balancing predicts poor mobile balancing, but a good score does not predict good mobile balancing. A low score on the pretest predicts low mobile balancing score, but a high score does not ensure a high mobile balancing score. In all these instances other factors clearly are at work.

It is abundantly clear that we are still a long way from achieving our aim of making a contribution to the problems of blind mobility by taking balancing as a setting in which to investigate the nature of sensory retraining. But we have at least established a methodology and a few facts which may lead to a better understanding of the role of vision in balancing performance.

□ Thanks are due to the heads, staff, and pupils of the following schools: Chorleywood College for Girls with Little or No Sight, Worcester College for the Blind and Forest Field Grammar School. The author was helped in the collection of data by Messrs. J. Dickinson, J. Garner, and R. C. Newman. The work was begun while the author was still a member of the Medical Research Council's Applied Psychology Research Unit; it has been supported by a grant from the Council.

A premium placed on consistent performance

Acknowledgements

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The Alameda County Placement Project: A Final Report

In a prefatory remark to an article that appeared in the February 1966 New Outlook I attempted to point out the relevance of the Alameda County Placement Project in the War on Poverty. It is said that the war has been reduced to a skirmish; the struggle, nevertheless, continues to find effective ways to salvage the so-called "hard core" groups who traditionally have been relegated to dismal lives of futile dependency. The ensuing article represents an accounting of the final and—happily—successful outcome of one such effort. The fact that this particular "hard core" group of citizens happens to be composed of blind persons makes this report even more pertinent to Outlook readers. Harold G. Roberts, Associate Director for Service, American Foundation for the Blind.

On April 1, 1965, the Alameda County (California) Placement Project for the Blind began an intensive program in rehabilitation services, including job placement, for long-term Alameda County Aid to the Blind recipients. The staff—a director, a rehabilitation counselor, a placement counselor, and a full-time clerical worker—was housed in the Orientation Center for the Blind in Albany.

□ In 1960, Andrew Marrin, then state director of Rehabilitation Services for the Blind, and Perry Sundquist, chief of the Division for the Blind in the State Department of Social Welfare, studied the feasibility of this venture. In 1964, a three-year project sponsored by the State Department of Social Welfare, the State Department of Rehabilitation, the Welfare Department of a populous county and the corresponding district office of the State Department of Rehabilitation was approved. The Alameda County Welfare Department, the second largest in California and serving approximately 76,000 recipients in all categories in a county including the cities of Oakland, Berkeley, and Hayward, was chosen. The agreement provided that the State Rehabilitation Department supply office space, telephone service, stationery, and postage. Case service funds were to come from general allotments in the Oakland district of the State Department of Rehabilitation. The Alameda County Welfare Department was to provide office equipment. Salaries and travel expenses were to be reimbursed to the county by the State Department of Social Welfare. Members of the staff were to be Alameda County civil service employees.

□ The Project would demonstrate whether an intensive effort would result in assisting an appreciable number of Aid to the Blind recipients to employment, and ultimately to self-sufficiency. It would also demonstrate the value

KRIS WINTERS

Mr. Winters was project director for the Alameda County Placement Project.

Project's Background

Purpose

of a co-ordinated approach geared to decreasing dependency on the part of several state and local agencies. It would test the feasibility of a team effort and the effectiveness of an interchange of counselor-client relationships on the part of the director, the rehabilitation counselor, and the placement counselor in the placement of the recipients in remunerative employment.

□ A preliminary survey revealed that there were approximately 250 Aid to the Blind recipients in the employable age group between 20 and 49. Clients over the age of 49 were accepted if they were in vigorous health. It should be understood that the staff at first had no way of knowing the number of people who would be found to be active clients of the State Department of Rehabilitation. As the names were screened, a check was made with the Oakland district office to determine if a case was open. As the Project developed, the staff members learned to detect from referral information the client's potential and status in the rehabilitation program. The more promising clients were found to be receiving comprehensive services. Throughout the life of the Project not one client with high potential was found who had been missed by the established referral system between the Alameda County Welfare Departments and the Oakland District Office of Rehabilitation.

Thus, the group with which the Project was to work consisted of those with limited potential, incomplete education, emotional problems, and a past history of chronic illness; many had already received rehabilitation services in California and elsewhere and had been closed as not rehabilitated. At the outset, there was a divergence of opinion as to what the staff would find. A number of people were confident that many clients who were trained, ready for employment, and waiting for assistance in placement, would be found. However, a few doubted this. With the assumption that some direct placement would be possible, it was decided to begin with a nucleus of 50 clients selected from AB files. With additional referrals from AB workers in the Alameda County Welfare Department the caseload soon rose to 70. The caseload was usually between 60 and 65. During the first nine months the staff worked on the premise that skilled people could be found. By the time the Project was completely organized, it was clear that the focus should be changed from direct placement to a thorough individual basic pre-vocational goal-selecting program. There was no change in personnel, and no reconsideration of the aims save that the focus was changed.

With one exception all clients were recruited from Aid to the Blind files of the Alameda County Welfare Department. Their cases were reviewed and their problems and potentials discussed by staff members. The exception was a totally blind diabetic client who was a potential AB recipient; he was placed in private employment and to date there has been no need for him to apply for assistance.

During the second and third quarters, the placement counselor was busy "knocking on doors of employers," contacting community resources, and visiting sheltered workshops. In addition to numerous sheltered-shop and vending-stand opportunities, 59 job openings were found in private employment. Many were given to the rehabilitation counselors for the blind of

Finding the Clients

Characteristics of clients

The placement counselor's role

the Department of Rehabilitation and the remainder were lost as the staff could not find trained clients to fill them. With the change of focus mentioned above the intensive drive for employment opportunities was discontinued and the worker turned his attention to the development of individual on-the-job training.

By the beginning of the fourth quarter most of the procedural and referral problems had been solved and the staff could devote its time and energy to recruiting, counseling, training, and placement. The staff continued to improve in efficiency. Case records were rarely returned for correction and only one rehabilitation plan has ever been disapproved by the rehabilitation supervisor in the Oakland district office, and only one client has asked for a fair hearing. Further, despite the severity of the handicap, whenever a client displayed some potential, the staff ultimately was able to find a proper agency, sheltered workshop, or community resource for him.

□ By the end of the third quarter, when the staff became convinced that no direct placements were to be made, a basic alteration in approach was adopted. It was apparent that the clients would require thorough rehabilitation services including evaluation, personal adjustment, and physical restoration. As the average age was 40, it was necessary that the services be accelerated; interruptions in service were to be avoided if at all possible. The services were to be direct, simple, and uninvolved, training periods were to be short, and the reward of a job always in view. The staff found that these clients did not understand or were suspicious of detailed and intricate plans. Training programs which involved the services of several agencies appeared to confuse them and caused misunderstandings and delays. Four out of five of the longer, involved, imaginative programs ended in failure. Since daily occurrences dictated the clients' decisions, a longer training program provided more occasions for bringing an otherwise successful rehabilitation program to a sudden stop.

The special project services differ from those of the Division of Rehabilitation for the Blind in the State Department of Rehabilitation.

In well-established rehabilitation programs clients are expected to come for services of their own volition, at a time of their own choosing. Further, clients are expected to display initiative in keeping appointments, obtaining physical examinations, and providing helpful information to counselors in the direction of choosing vocational goals. The aim of the Project was to determine if those who lacked this initiative did possess the motivation and ability to benefit from services and eventually to be placed in jobs. The program was brought directly to the clients and they were urged to participate in it. The staff spent much time with them in the early stages, assisting them to keep appointments for physical and eye examinations and accompanying them on trips including those to training sites. Every effort was made to involve their Aid to the Blind workers and to gain their support through frequent contacts. Emphasis was given to the early phases of the rehabilitation program to a point where the clients began to display some initia-

Altering the Project's Approach Necessary

Seeking out those who do not come voluntarily

tive and independence. This usually occurred at the end of the diagnostic services or a week or two after formal training was begun.

□ Few general statements can be made about those served by the Project. All had visual loss, vocational problems, came from families with major social irregularities, and all but one lacked a marketable skill. Lack of education was also a general factor, even though 26 of the clients had some college training. In all but one case, however, the vocational goal had not been reached. Forty-one of the clients had no education at all; the majority reported they had completed the ninth grade or less. Also, though the staff found many likeable, co-operative, and appreciative clients, lack of social graces contributed to the problems of determining vocational goals and conducting successful interviews with employers. The clients were incapable of carrying on interesting conversations which would reveal their attitudes and personality to the counselor or a prospective employer. They needed assistance in making major and minor decisions.

Despite these shortcomings, the staff found much that was positive. One hundred-three clients were receptive to the program and were co-operative in every way. They wanted to acquire a skill and increase their incomes and were appreciative of another opportunity to achieve. It is felt that most of the group who refused services were of the opinion that their health was too poor, that they were too old, or that they lacked the education to benefit from rehabilitation services.

During the Project, three vocational psychologists were assigned to test clients for intelligence, manual dexterity, vocational potential, and personal adjustment. They found as much motivation in this group as in any other rehabilitation caseload. The files contain many instances of clients who traveled long distances, sometimes walking in the rain, to keep appointments. Some clients attended classes when they were ill. Others displayed great determination to achieve when the odds were strongly against them. All clients enrolled in this program met with continued opposition from their families and negative comments from blind friends. The staff was continually surprised to observe clients persisting in the training programs despite the lack of enthusiasm displayed at the time of the referral.

Two normal motivating factors appeared to be absent. First, these clients did not say that they wished to work because they wanted their children to be proud of them. Actually, they regarded their children as burdens, and responsibility for them as a hindrance to rehabilitation and employment. When reminded that their children observed other blind people at work, they would not comment. Second, they seemed to be oblivious to the inspirational approach to overcoming a physical handicap. What others far more handicapped have accomplished or what their children thought of them appeared to matter little. They were, however, anxious "to find something to do," to fight boredom, and to increase their incomes. The fact remains that 38 clients were placed in employment by the Project despite lack of education, marketable skills, and social graces. Motivation must be the answer to their success.

Clients Difficult to Categorize

Testing procedures

Some motivating factors missing

□ Probably the most distinguishing feature of the Project was the persistent, aggressive approach to the building of a caseload. It early became apparent that writing letters to prospective clients was ineffectual. Several clients reported that as most mail they received was unimportant, they did not give it immediate attention. Others did not have telephones, and often the workers had no choice but to call at their homes unannounced. Those who were confined because of severe chronic illness were relatively easy to find, and a quick determination of their rehabilitation potential was made.

There was a large group of active people whom the counselors had difficulty in locating. They were elusive and evasive, and their families would give no information as to their whereabouts. Innumerable home calls were made, and the Aid to the Blind worker was often asked to assist in finding the client. Admittedly these efforts were time-consuming, costly, and sometimes frustrating, but some of the most successful rehabilitations came from this group.

Without active recruitment the Project would have had no clients, for those who were ready and willing to accept services had already been enrolled in the regular state vocational rehabilitation program. The Project staff found that the Division of Rehabilitation for the Blind had given excellent coverage to the healthier, more promising, and better-adjusted clients in the area.

□ In compiling the statistics for all reports on the Project, the 244 cases reviewed by the Project in the three-year program were placed in five categories: (1) Those who accepted services and opened rehabilitation cases—101; (2) those who were already employed to their highest potential and whose income did not cover their basic needs—21; (3) those who refused services of any kind—66; (4) those who were found to be too ill to benefit—45; and (5) those who were not eligible—8. (Three AB recipients were served but DVR cases were not opened.)

There were 142 men and 102 women, 148 white, 90 negroes, 3 Orientals, and 3 American Indians. The youngest was 19, the oldest was 72, and the average age 40. Prior to the Project, 138 had received substantial rehabilitation services but not necessarily in California; 106 had not received services. Twenty-eight clients had police records, 41 had no formal education, 86 had some training in special classes or in elementary grades, 91 had attended high school, and 26 had some college.

As for visual acuity, 81 were without light perception and 163 were partially sighted. Seventy had no additional major health problems, 108 had one more, and 66 had two or more. These other disabilities include severe hearing loss, emotional disturbance requiring psychiatric treatment, diabetes, alcoholism, and mental retardation.

The Project was successful in persuading 22 clients to undergo low-vision aid evaluation; all clients were pessimistic about the outcome. In some instances, they agreed to go for examination simply to prove to the counselor that he was wrong. Of the 22 examined, two could not be helped in any way. The examinations of five more were not completed when it was apparent

Aggressive Approach to Building Caseloads

Some potential clients elusive

Overall Statistics

Low-vision services given

they were so limited mentally that they were not able to read and thus could not benefit vocationally from improved vision. The remaining 15 could benefit from this service. There were some startling successes; 12 made particularly good use of their restored vision. They could read, sometimes for only short periods, identify labels, make out addresses and street signs.

This special service was very helpful to the counselor in ascertaining the client's true visual acuity. In the eye reports used to determine eligibility for Aid to the Blind, there was great disparity between the clinical measurement and the amount of partial vision used regularly by the client. The reports from the Low Vision Aid Clinic gave a far better indication of the client's ability to function vocationally.

It is useless to speculate on the number of clients who could benefit from eye surgery. The staff found several cases where surgery had been recommended but not performed. Some of these reports dated back as far as 1945, and as eye surgery techniques have progressed amazingly since then, new eye examinations were in order, especially for those with corneal or cataract diagnoses. In addition to the 15 who could benefit from low-vision aid lenses, the Project was instrumental in assisting three clients to regain much vision through surgery and two more from the fitting of new glasses.

□ During the three-year project, 38 placements were made; there were 35 "closures to employment" with the State Department of Rehabilitation, another to the department of an eastern state. Two clients declined to have open cases with the Department of Rehabilitation, but the Project staff assisted them in finding jobs. Two clients were placed twice: a janitor lost his job in a sheltered shop and was placed in another one at a higher hourly rate, and a typist lost her job and is now working as a court reporter. However, for the sake of clarity, the statistics will show that 38 people were placed. The average age of the group was 39½ years; there were 27 men and 11 women. As to previous experience, 22 had worked in private industry, 10 in sheltered shops, and 6 had never worked. There were 17 Whites, 20 Negroes, and one Oriental. Four had no formal education, 12 had an elementary education, 17 had high school, and 5 had some college. The average beginning income for 38 people was \$246.00 per month. Income is now \$286.00 per month for the 30 people still working. There were 22 placements in private industry, 15 in sheltered shops, and one in a home.

The aim was to place as many as possible in private industry, but the staff had to place 15 people in sheltered shops. These people had had long periods of unemployment; they needed to build up work tolerance, and required much assistance in personal and social adjustment. These placements were not easy. Much counseling was required to get these clients to accept training and placement in sheltered shops, and the directors were, at first, reluctant to accept Project clients, as they were thought to have little potential. When the work-training program was activated, the counselor was called upon to assist in the solution of both minor and major problems and to keep the clients on the job and interested in their work. Placements with private employers required far less time and work. The relationship with

Eye surgery

Placements Made

Workshop placements especially difficult

these clients was far more pleasant and in every aspect the results were far more gratifying. The theory that sheltered-workshop placements are an easy way out is not valid.

□ It is impossible to give, at this time, a complete account of Project expenditures. For instance, the outlays for case service funds from the State Department of Rehabilitation are not released until several months after the end of the fiscal year. It is difficult to compute the costs of office space, stationery, postage, etc. However, the amount spent for salaries, benefits, and travel is known for 11 quarters and can be projected for the twelfth. For the purposes of evaluation, a cost figure can be ascertained which would reveal the effectiveness of the program.

From April 1, 1965, to January 1, 1968, salaries, benefits, and travel expenses totaled \$123,006.79; projecting for the fiscal quarter, the total would be \$134,189.16. The first fiscal year, the Project spent \$8,000 for casework services; statistics for the last two fiscal years are not readily available. Based on the \$8,000 expenditure for the first year, a generous estimate for the three-year life of the Project would be \$25,000. Miscellaneous items—i.e. telephone service, stationery, etc.—could be set at \$4,192. Although this calculation is brief and the cost of some items estimated, no major outlay has been omitted, and the total of \$163,381.16 will come reasonably close to the final accounting. By comparison, the staff found 113 clients in the caseload who had never worked. The average Aid to the Blind grant in Alameda County in December 1967 was \$147.57 per month. The 113 recipients in one year will receive assistance grants of slightly more than \$200,000. Of the 38 people placed by the Project, 30 are still working. Their aggregate income for one year is \$102,960; in one year the Project expenses are slightly less than \$55,000.

□ In February and March 1967, the staff of the Project participated in three one-day workshops with Aid to the Blind workers, their supervisors, and other welfare employees. Those attending served 80 percent of the Aid to the Blind recipients in California. These conferences were highly successful and pointed up problems common to every Aid to the Blind unit. The workers were convinced that the Project findings would apply in their counties and were sure the same findings would apply in the Aid to the Disabled units. Also, they were confident that an aggressive recruitment program would result in the enrollment of clients having much employment potential and good prognosis for physical restoration.

There is little doubt that county welfare departments can be a powerful force in rehabilitation. There should be a continual, aggressive, realistic recruitment program for those with potential to enroll for rehabilitation services. The social workers should be assisted to make more accurate evaluations of hard-core clients in their caseloads and to make better referrals to the proper agencies. Physical restoration is as important as the financial grant. Hard-core clients need much support and counseling before they will enter a hospital. The social worker played a vital role in every physical restoration case and every successful placement.

Project Cost

Staff Workshops Valuable

County Welfare Departments should continue to participate in rehabilitation

Tactual Maps for the Visually Handicapped: Some Developmental Problems

Braille was originated by Barbier, an officer in Napoleon's army, who called his system "Night Writing." He was seeking a means of sending messages which could be read by touch at the front at night, without exposing a light.

Braille has since been modified and greatly improved. The six dots of the braille cell (two rows with three dots each) are numbered, from upper left to lower left—1, 2, 3,—and from upper right to lower right—4, 5, 6. The dots can be combined to form 63 different symbols, including all the letters of the alphabet, arabic numerals, some diphthongs and other combinations of letters, punctuation marks, capitals, and contractions for common words.

Maps for the blind are almost as old as the braille itself, but the amount of effort expended to improve and standardize braille has been far greater than that devoted to graphics. The first record in this country of a professional cartographer involved in graphics for the blind dates back to only 1958. (1)

The fact that no cartographer has devoted time to maps for the blind does not mean that they were not needed. The demand has been and still is very great. (2) The latest estimates by the National Institute of Health report 400,000 legally blind. There are over 1,000,000 in other categories of varying degrees of blindness. Of these, over 20,000 attend public, private, and residential schools—1,500 to 2,000 in high schools and colleges. The highly developed and standardized braille fills the requirements for embossed verbal communication but the means available for embossed graphic communication, i.e., maps, graphs, and diagrams, are still relatively crude.

□ In 1958, Willis R. Heath of the University of Washington explored the usefulness of Virkotype printing for the reproduction of tactual graphics and successfully identified 11 discrete tactical symbols for area. Carson Y. Nolan (1960) and June E. Morris and Carson Y. Nolan (1961) trained psychologists from the Printing House for the Blind, Louisville, Kentucky, replicated Heath's work and were able to identify only seven discrete symbols for area. (3) The different results are traceable to the different methods of reproduction and testing.

The testing of symbols fits into the psychologist's methods of testing if they are being studied for simple recognition, but if they are used on maps the problem differs. Very often the person tested has never seen a map, and

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The tests for embossed graphic communication are still relatively crude

The Development of Symbols

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if the person administering the test has no training or experience in graphics, the test results are likely to be highly suspect.

Symbolization is a very complex problem. The drawings must be kept simple and the symbols distinct. Pictorial symbols only have meaning if one has seen what is being pictured, and therefore have little use in graphics designed for the blind. The tactual symbol often is easily confused by the blind. The symbol X, for example, may be confused with a square though visually they are distinct. Every symbol used must be explained, and if the symbol is rotated this must also be carefully spelled out. Tests conducted at the Virginia State School for the Deaf and Blind showed that the symbols indicated by asterisk on Figure 1 were tactually the most discrete. In particular, symbols number 11 and 23 proved to be clear, distinct, and readily understandable. It is hoped to develop further variations of these two symbols in the future.

□ The problems involved in symbolization are great indeed, but another problem also looms large, that of reproduction. To make use of the symbols on maps, a method of reproducing multiple copies at a nominal cost was needed. For a solution to this problem the Virkotype or Thermocraft process was tried.

Experimentation with various papers and resins on both the offset and letterpress led to the use of 70 lb. clay-coated paper with permanent gloss extra coarse No. 6 resin, and printed on letterpress. (4) With the automatic Virkotype machine attached to the press it is possible to reproduce up to 1,500 copies per hour in two colors at a total cost of less than six cents per copy for 1,500 copies, the unit cost decreasing with larger runs. The plastics which are used now in the thermoform process are priced at three cents per sheet. Furthermore, thermoform reproduction is slow, with consequent higher labor costs.

With commercially available materials, the raised image is uniform at .007 of an inch but present experiments are very promising for increasing the relief and developing a textured line through the use of silicon fillers.

□ After the symbols were developed and tested, it was desired to use the Virkotype process in actual line drawings. A convenient opportunity to test the efficiency of the symbols as well as the utility of the map as a whole was provided by the convention for the American Association of Workers for the Blind which was held at the Statler-Hilton Hotel, New York City in July, 1964. The major advantage of using the occasion was that the blind are in normal daily contact with such objects as stairs and doors, and thus would be in a position better to evaluate the accuracy with which certain symbols portrayed the objects that they were designed to represent.

Figure 2 is a set of floor plans of the Statler-Hilton Hotel. The plan on the left is of the ground floor, with the streets, entrances, lobby, and shops. The plan on the right is the ballroom floor of the hotel where most of the meetings were held. The braille at the top identifies by number the items shown on the map. The bottom two lines of this braille are the legend. The explanations and legend were made as complete as possible, since these plans were

The drawings must be simple and the symbols distinct

The Problem of Reproduction

Testing the Virkotype Process

to be handed out by the American Association of Workers for the Blind at the convention without further explanation. This plan was designed to aid the blind in moving around the hotel and to locate meeting rooms.

The reactions to the floor plan were mixed. (5) Several blind persons, through the Library of Congress, Division for the Blind and Visually Handicapped, received these plans early and were able to study them in advance of the meetings. Many of the blind who first received the plan at the hotel

Reactions to test were mixed

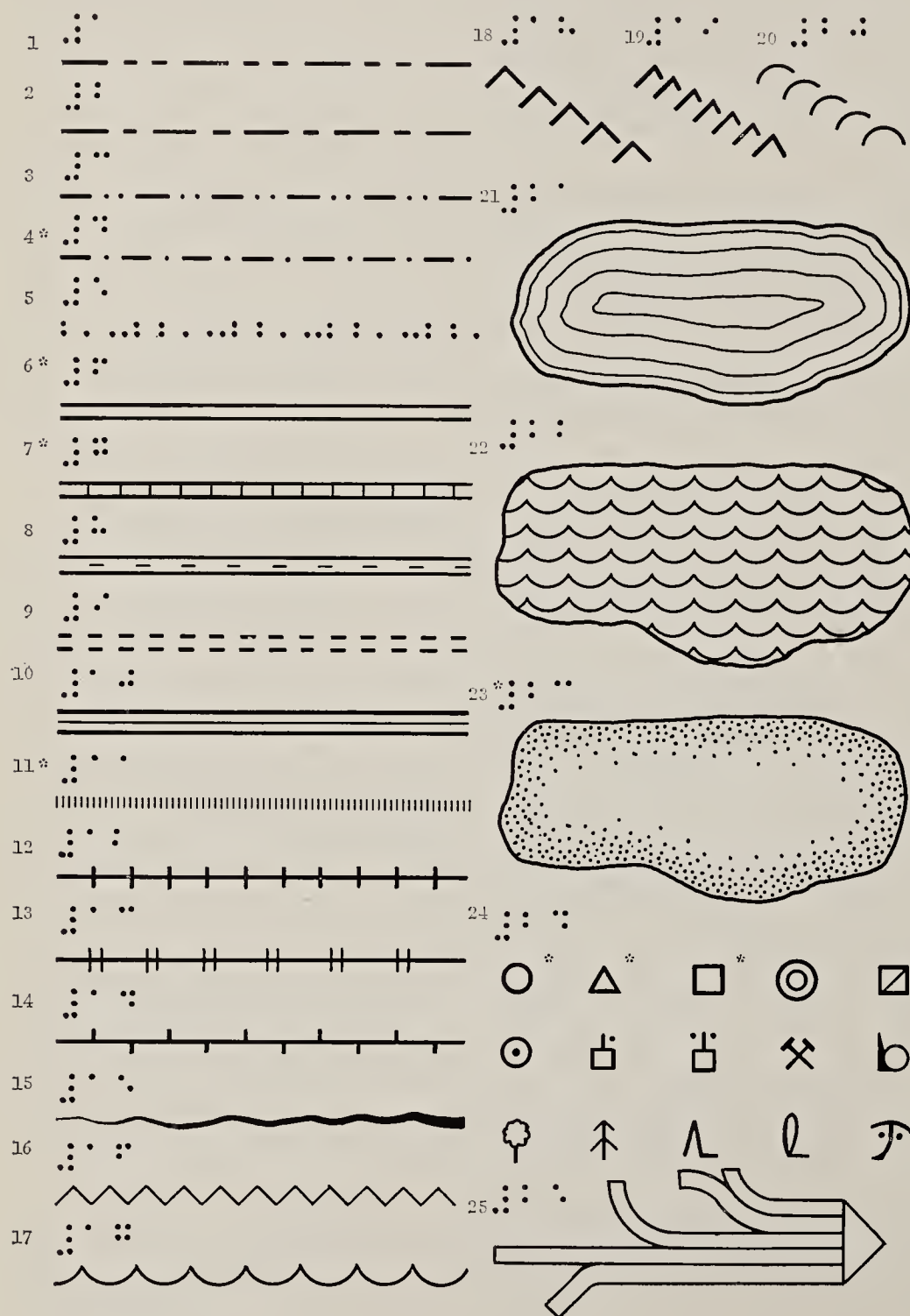


FIGURE 1
Symbols

along with all the material one usually receives at conventions did not read it but put it away until they returned home. They read it then, with knowledge of the hotel. There was a question sheet (not in braille), handed out with the floor plan, but due to several factors the responses to the questionnaire were not as numerous as hoped. However, all of those who responded reacted favorably, and many offered suggestions which were incorporated into later plans.

Some of the items on these plans (Figure 2) that generated the most comment were the lengthy list at the top, the symbol for the stairs on the plan (not associated with the symbol in the legend except when it was oriented

Test showed defects in symbolization

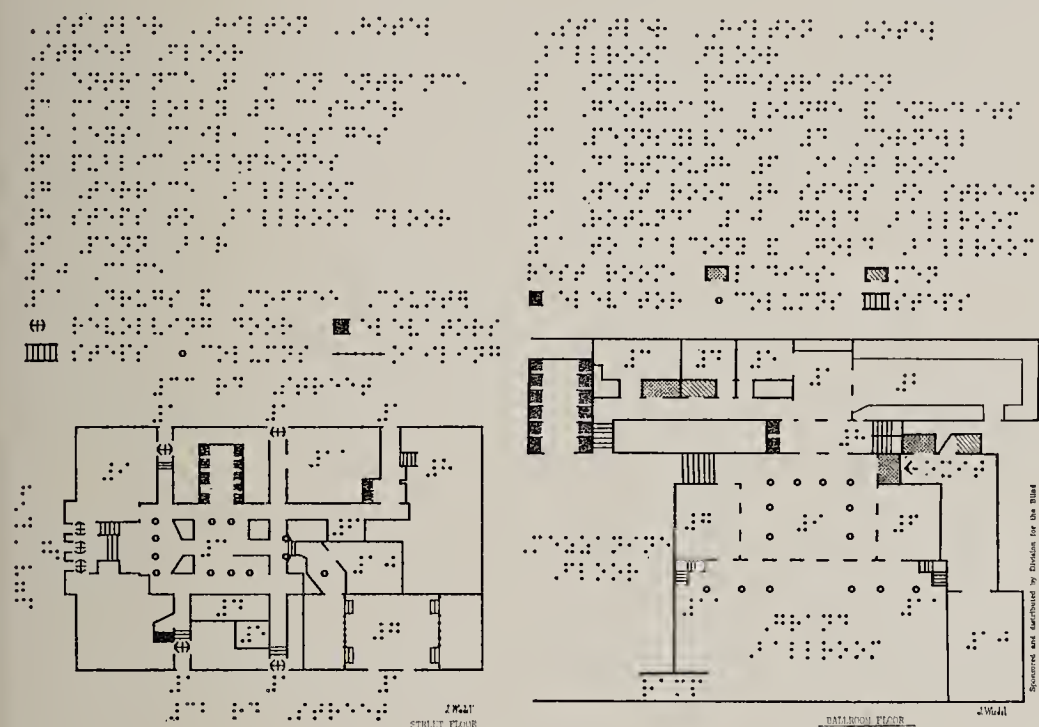


FIGURE 2
Statler Hilton Hotel

the same way and also contained the same number of steps), the meaningless arrow indicating direction (since this is an association they are completely unfamiliar with), and they could not ask a sighted person for explanations since the legend was solely in braille.

□ The second attempt (see Figure 3) is a ground floor plan of the Library of Congress. The legend is very small since the plan was designed to label all rooms and facilities whose locations a prospective user may need to become familiar with. Figure 3 is a proof copy and does not show the overprint for the sighted that was also included in the final version.

Unlike the first attempt (the plan of the Statler-Hilton), there was sufficient time to try out this plan, and it was tested by both blind and sighted persons, who were blindfolded for the purpose of testing. The revolving door symbol is relatively unchanged. The symbol for walls is slightly heavier and spacing between the braille and the line symbols for walls is increased.

A Second Test

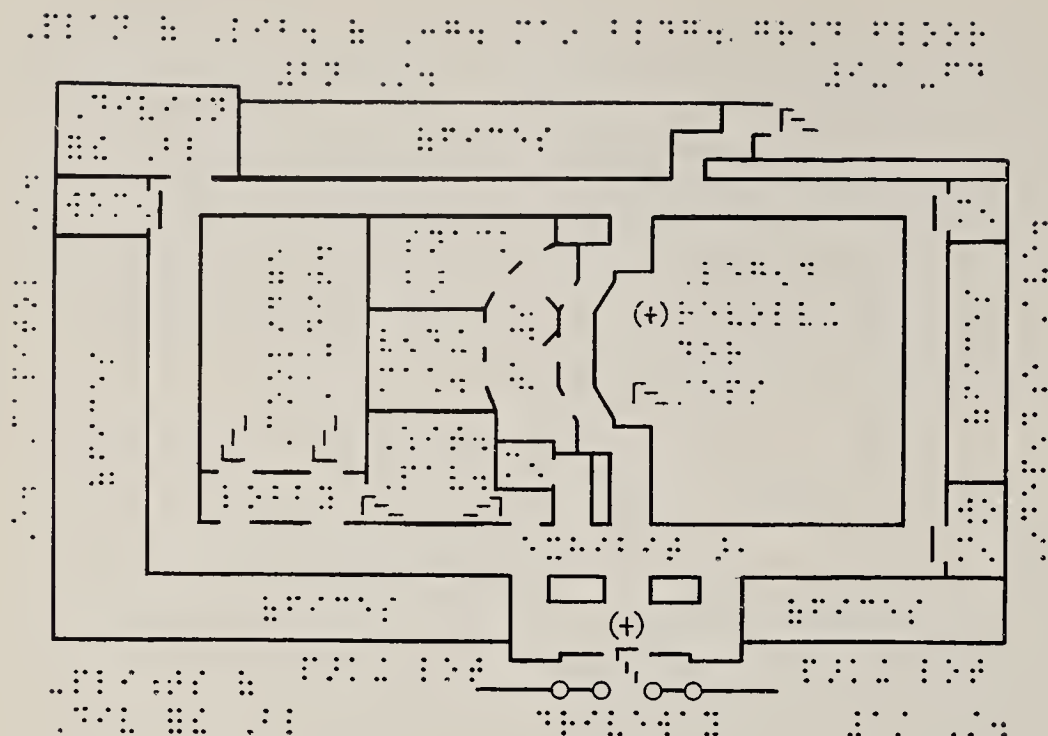


FIGURE 3
Library of Congress, Ground Floor
(Preliminary Copy)

The symbol for steps is new. It is designed to indicate the location of steps and whether they go up or down. It was determined from the responses to the earlier plan that this was more important than the number of steps.

This plan was preferred over the earlier hotel plans and presented only three real problems. The names in braille that were placed vertically instead of horizontally, because of space requirements, caused a little confusion. The legend was placed within the plan in order to keep the sheet size to 8 x 10½ inches and was headed by the word "legend." This too caused confusion, and there was the ever-present problem of the steps. The symbol could not be turned and still be interpreted as the same symbol. That is, a

Causes of confusion

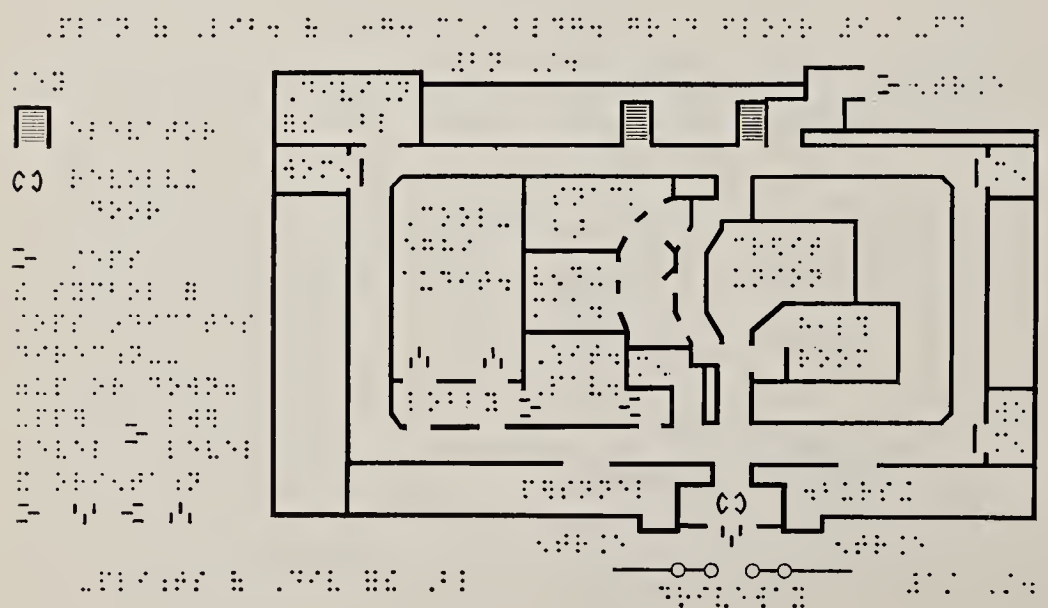


FIGURE 4
Library of Congress, Ground Floor

separate symbol or a lengthy explanation would be necessary to differentiate between stairs that go up and stairs that go down.

After testing, the plan was redrawn, incorporating not only the suggested changes, but additional information that the blind users requested (see Figure 4). The lines have been thickened to obtain more relief (or textural difference) and the symbol for steps was changed and more fully explained in the legend. A red overprint was added to facilitate the sighted in helping the blind. The names of streets and parking lots were not included.

□ The blind have no concept of space-orientation. Thus, space qua space is of little importance in the design of graphic materials. Instead, it is the relative position of the information shown that is of primary importance.

The external configuration of the building and many of the internal partitions on which the architect places major emphasis are of no importance to a floor plan, since the blind cannot see, (6) or do not come in contact with them. Other items that are barriers to the blind are very often added later to a building. These include, for example, temporary partitions or the heavy furniture in a library where locations are not indicated in the original architectural designs. Such additions usually must be noted by personal inspection. All of the markings on the original floor plan were added through inspection. Figure 5 is the architect's drawing; Figure 4 is the author's design of the same building for the blind.

□ In the preparation of the campus map of the Virginia State School for the Deaf and Blind (Figure 6) it soon became apparent that the poor quality of the original map would necessitate not only a personal inspection of the campus but perhaps several changes before a satisfactory plan could be developed. When letterpress plates and raised printing are involved, changes are very expensive. Almost 60 percent of the students had some degree of light perception (this is true of most schools for the blind), and with optical aids most of them could read the maps with large type. Since the final map was to be used both by the partially sighted and the totally blind it would have to have large type as well as braille, so the preliminary drawings were made on tracing paper and low-cost ammonia process copies were run off and tested. In this manner repeated changes could be made and new designs tested very quickly and cheaply. When the test results were satisfactory the braille was added to the line drawing and reproduced in black with raised printing on a sheet which had the large type pre-printed in red. In this way many of the users have the opportunity to pre-test the final map, and since graphics for the partially sighted present many problems that are very similar to those of the blind, a rapid low-cost method can be used to improve the final plan.

These plans were kept to standard page sizes, i.e., 8½ x 11 inches or 8½ x 14 inches, but the standard braille page of 11 x 11½ inches used for the Virginia State School for the Deaf and Blind is a more practical page size to work with.

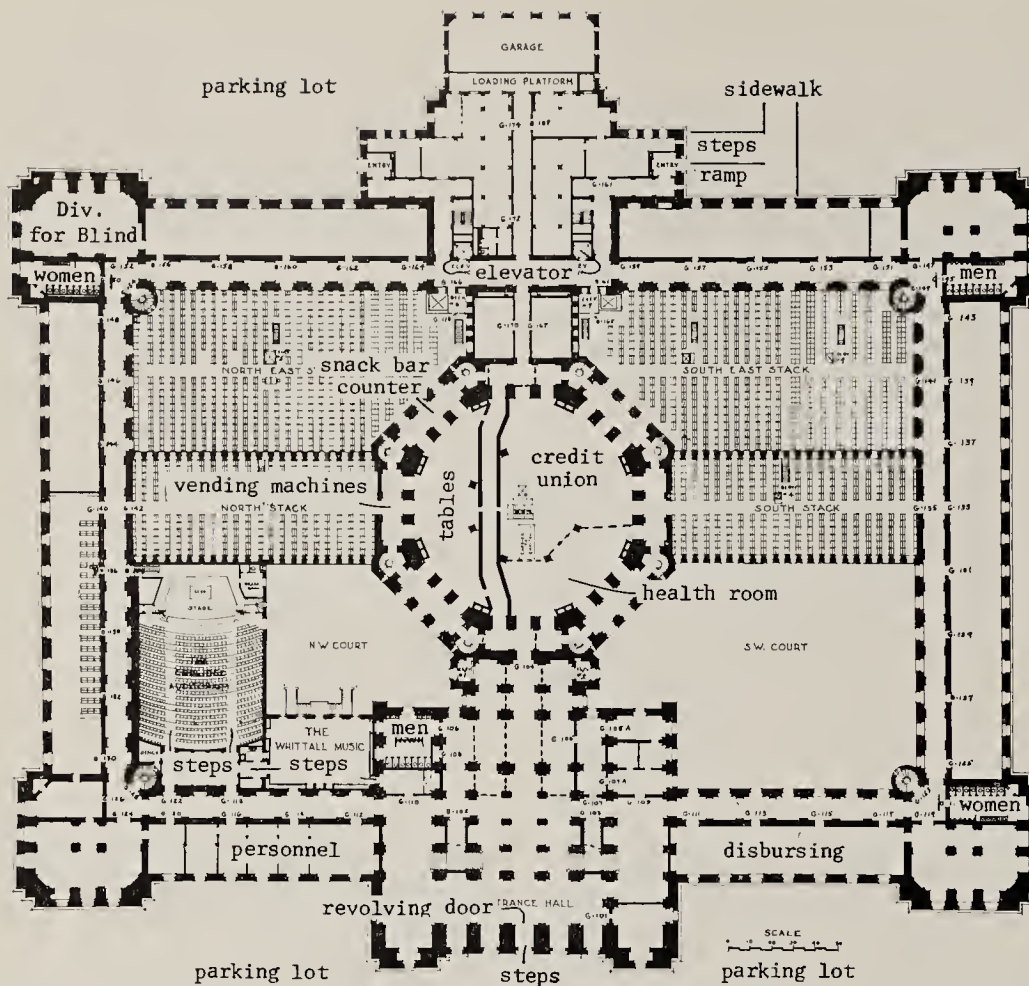
Size of a plan or map is an important factor, since the blind can read an area only as large as their finger tips. This also places a constraint on the

Space Orientation vs. Relative Position

Personal inspection necessary

Test at Virginia School for the Blind

FIGURE 5
Library of Congress, Ground Floor
(Architect's Plan)



scale and level of detail that can be shown on a plan. Visually we observe the whole, then consider the detail of the parts. The tactual reader on the other hand observes the parts and constructs a whole. For the blind to read a page size map has been likened to a sighted person reading a large wall map from a normal reading distance of about 10 inches.

□ Lettering nearly always presents difficulties in graphics, and the use of braille does not solve any problems. Braille, as most type styles, is designed to be read in a horizontal line. Unlike other type, however, braille cannot be reduced, slanted or otherwise varied. This, plus the fact that the braille reader has never encountered the type in any other form or position than that found on a printed page, presents very special problems in mapping. One must often design parts of the map around the lettering rather than the usual selection of lettering to fit within the map design. The space between the braille cells and the line of work of the drawing is critical, and though it does not bother some tactual readers to turn the page if the lettering is placed other than horizontal, for most persons it causes confusion. Second grade braille (7) is more convenient in the design of graphics since it uses a number of contractions, and is understood by most braille readers.

Use of Braille Presents Problems in Mapping

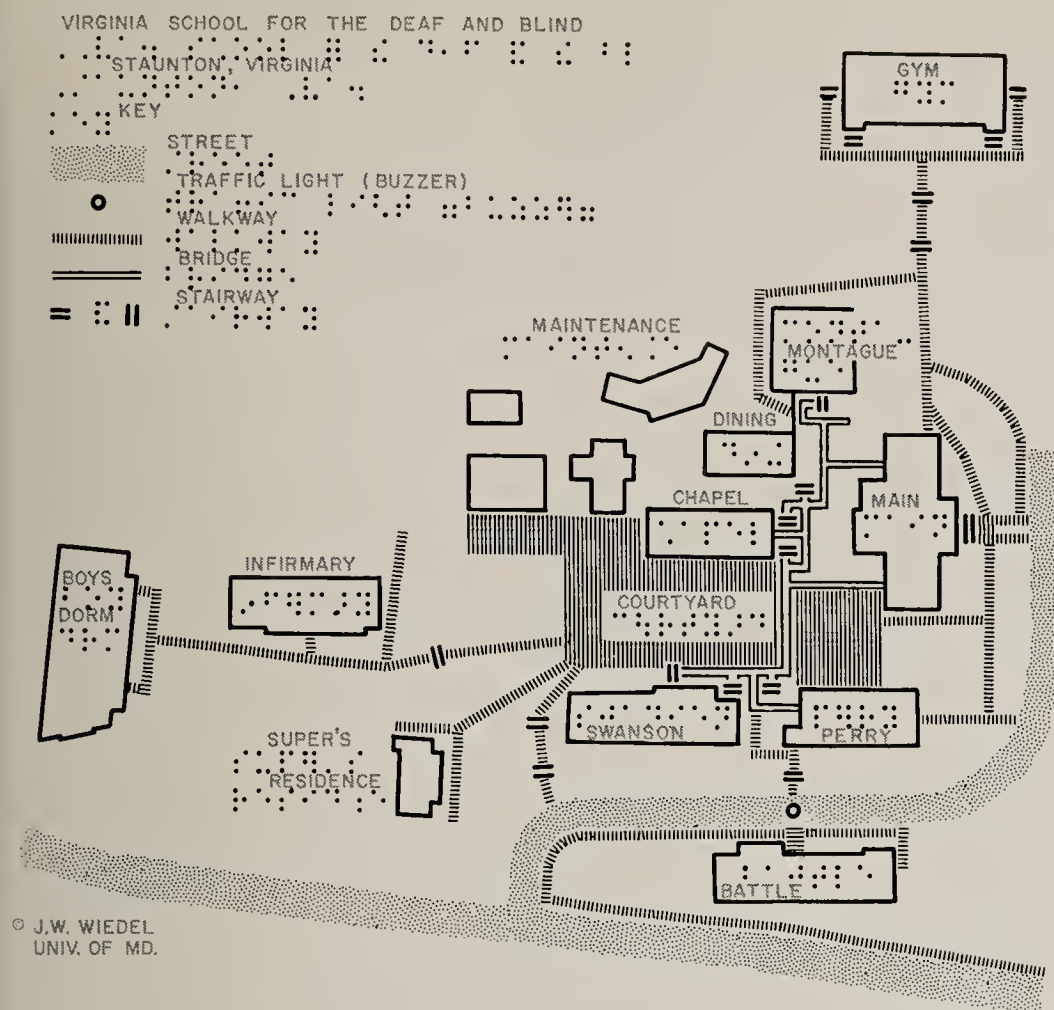


FIGURE 6
Virginia School for the
Deaf and Blind

□ In summary, graphics for the blind should be designed without neat-lines and borders. The title should be at the top of the sheet followed by any necessary explanations and keys (the word "legend" should not be used). Symbols should be kept to a minimum, clearly explained in the key and constructed with as much contrast as possible. Second grade braille should be used and it should be kept horizontal, if at all possible. In plans for partially sighted a minimum size of 12 to 14 points should be used.

The maps can almost always serve multiple purposes as the map of the Virginia State School for the Deaf and Blind, if large type is used in conjunction with braille. This map is also handed out to the sighted visitors as a guide and the lack of scale or exact space orientation has yet to draw an unfavorable comment.

As geographers, few of us have enough background and training in psychology or in working with the blind to develop the best method of testing, and few trained psychologists would have enough background and training in geography or graphics to develop the best method of testing embossed graphic materials. This is a major problem, and until a better solution is worked out the two should work together in the development of better graphic materials and methods of testing them.

Guidelines for Graphics

Geographers should work with psychologists

These floor plans were reproduced on a Virkotype machine in an attempt to find a means of high-speed low-cost volume production of graphics for the blind. With extensive experimentation and testing, a near satisfactory combination of relief and texture has been achieved and present experiments show possibilities of great improvement.

1. Heath, W. R. "Maps and Graphics for the Blind: Some Aspects of the Discriminability of Textural Surfaces for Use in Areal Differentiation," Ph.D. thesis, University of Washington, 1958.
2. Sherman, John F. "Current Map Resources and Existing Map Needs for the Blind," *Surveying and Mapping*, Vol. 24, No. 4, December, 1964.
3. Morris, J. E., and Nolan, C. Y. "Minimum Sizes for Areal Type Tactual Symbols," *The International Journal for the Education of the Blind*, Vol. 13, No. 2, December, 1963.
4. The clay coated paper has a very smooth hard surface and absorbs little ink, thus leaving more ink available as an adhesive for the resin. The resin used is a ground plastic with a low melting point and is available from the Virkotype Company in Plainfield, New Jersey. The letterpress is capable of depositing a greater amount of a slower drying ink than the offset press.
5. At the same time, a booklet prepared by Recordings for the Blind was handed out to the participants. This booklet described the hotel and provided directions to the meeting rooms. This had been prepared for previous meetings and many blind persons relied upon this and never referred to the floor plan since it was neither explained nor advertised as being in existence.
6. In a blind person's vocabulary, the action of seeing really denotes "looking" with their finger tips.
7. There are three grades of braille. Grade 1 uses a direct translation, one braille cell for each letter. Grade 2 uses 185 contractions and is taught to all braille students. Grade 3 uses more contractions but is read by very few persons.

References

The "Typhlo-" Words

When an attempt to give the language a new word miscarries, the worthy sponsor's chagrin often comes near to matching kingly grief over an abortive crown prince. It is among the griefs the world at large has great difficulty understanding. Most people have no great zeal for the making of words, are as happy with serviceable slang as with the Queen's English, regard attempts to preserve classic language as a trifle absurd, and the building of words on linguistic principles as presumptuous. The late Adolph Meyer was as close to the heart of the Johns Hopkins Medical School as any physician who was ever a member of its faculty. Yet, both teachers and students in the famed "Pithotomy" Club considered his coined psychiatric vocabulary the most hilarious fair game in the world, and nothing more amusing than the introduction of "Dr. Meyer" to give an address, upon which a Chinese student would go before the audience and speak in his native tongue. The very name of the Pithotomy Club was Osler's own sly poke at linguistic pretension, since it was his "Greek" for breaking open a keg of beer. Adolph Meyer's profound clinical wisdom seeped all through the greater Hopkins community, but the technical words he tried to give his colleagues lie unused in his posthumous book of papers which the editor felt compelled to title *The Common Sense Psychiatry of Adolph Meyer*. Workers for the blind who mourn the new death of the "typhlo-" words might take a crumb of comfort, if they care to, from this instance of etymological defeat coming to the greatest enemy of psychiatric humbug the 20th century has produced.

□ There is nothing more strange and unpredictable psychologically than the willingness and unwillingness of communities to adopt terms. And no irony is more curious than the medical community's acceptance of Freud's term "psychoanalysis" (in which, by and large, doctors did *not* believe) at the same time physicians rejected Meyer's term "psycho-biology," which emphasized the hard core science which they espoused. Nevertheless, it illustrates a fairly usual phenomenon: not uncommonly a term which is played with to tease or scorn acquires status and dignity the teasers and scorners would have never promoted, had they known what they were doing. "Psychoanalysis" was not quite like "Baptist" and "Quaker," inasmuch as it originated not with his detractors, but with Freud himself. Yet to those who opposed him the word was too good a joke to quash with a conspiracy of silence. And the amusement spread the word far more widely than Freud's

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Joke Words Accepted

faithful, unaided, could have done, until the substance which was real in Freud was rewarded by ultimate, joyous rendezvous in all sorts and conditions of respectable circles, even Adolph Meyer's own. This turn of events brings to mind the words of Emerson's Brahmin: "If the red slayer thinks he slays, or if the slain thinks he is slain, they reckon not the subtle ways, I turn and pass and turn again . . . when me they fly, *I am the wings.*"

□ Friends of the word "typhology" may well ask themselves if the term they tried to promote has not suffered from a want of ridicule. Certainly "peripatology," which is not yet in the dictionary, has fared much better. People who have laughed about it heartily, have then learned to say, more or less as a parlor trick, afterwards recalled it to the tongue for the amusement of the company, *but* on some occasion needing a "peripatologist," have asked for a "peripatologist," just to make sure some substitute was not palmed off on them. (The slightly hushed tone of such novices uttering the word somewhat resembles the tone of the respectable who once inquired, when suffering from a cold, for a "speakeasy.") "Peripatology" did not arrive quite like a thief in the night, as have such usages as "know-how," "moneywise" and "in-house." It trumpeted itself at the gate. But when it was welcomed like a court jester from another country, it took its treatment stoically, undoubtedly banking on the fact that its work in the world was real, which subsequently appears correct.

□ Why, we may ask, has "typhology" had so much rougher a course? Lying fallow in the Oxford and Webster dictionaries, it is defined by the former as "the knowledge that deals with blindness," by the latter as "scientific knowledge related to blindness." No other word in the language is thus defined by either of these respected authorities, yet all attempts to make the term current are greeted by such coldness that it is far more effective than typhoons of protest. To ask why this should be among workers for the blind is to invoke a curious kind of suspicion which, as a rule, gives way only to heated argument, or a change of subject.

In heated argument, thought seldom rises above the level of a terse and final, "I don't like big words; you can have them," or "It sounds too much like 'syphilology'."

For the brave and the thick-skinned, however, the conversation may be diverting. It may be pointed out, for example, that "typhology" is no bigger a word in actual letters than "dictionary," "mountaineer" or "Eisenhower," and has only one more letter than "hamburger" and "speakeasy." It is, moreover, shorter than "workfortheblind," one word to the initiated, but not to the general public. The term "workfortheblind" may then be attacked hip and thigh because, though it is clear to itself that it is not actually "work for the blind" but "work to get work—and other things—for the blind," the world at large does not understand this and is misled by the usage. And when an explanation is given, the interlocutor who is a novice is likely to have an even more suspicious gleam in his eye than if we had said "typhology" and explained that we meant "the knowledge that deals with blindness."

Has "Typhology" Suffered from a Want of Ridicule?

Is "Typhology" Too Long?

"I don't like big words"

□ The "syphilology reaction" has probably done much to return "typhology" to embalmer and tomb after each attempt at resurrection. Even very common "good" words that sound like "bad" words are a source of worry to people, and the fear of tongue slippage which results in the saying of a "bad" word by accident is by no means pathological. Altogether sensible is the apprehension that when you have said the "right" word the hearer who is not well informed will think you are using a "bad" word.

Two other reactions to "typhology" which are frequently heard are very deep indeed. These are, "I object to the word 'typhology' because there is no 'science that deals with blindness,'" and on top of this comes the statement, "I hope there never will be."

To discover this point of view is to encounter an idea which has real force among blind people and those who try to help them. It is also a daring point of view, for to feel cut off from science, or actually reject it, is next door to blasphemy in the 20th century, and the mood in which this alienation is announced is rarely one of equanimity; rather it ranges from rue to hubris.

Attempting to move onto safer ground we may ask if there is no "typhology," might there not be "typhlotics," similar to politics, and granting that "typhlophile" was a rather frightening piece of sentimentality, might not "typhlotician" be descriptive of reality?

□ Here in the natural course (and sometimes in the name of the Saints) it will be asked: cannot the root "blind" be used? This question inevitably leads to the ups and downs of "blindiana" and "blindism" and the large number of euphemisms which have come into being: "sightless," "unsighted," "without vision," "visually handicapped." And there is a story that one agency head was insisting on "people who happen to be blind."

"Euphemism," the dictionary says, "is substitution of an inoffensive or mild expression for something unpleasant." Thus, it would be euphemistic to refer to certain individuals in the field of work for the blind as "typhlautocrats," instead of certain less acceptable terms by which they sometimes refer to each other.

It is not very difficult to hear the scorn of these "typhlautocrats," the most sardonic of whom also say, "Typhology! Bah! Call it 'typhlomancy' and I'll buy it. Similar to 'necromancy,' of course!"

Such a remark might be described as "typhlosatiric" or "typhlosardonic"; the satiric, according to H. M. Fowler, having for its motive amendment, its province morals and manners, its method or means accentuation; while the sardonic, in a slightly different key, has for its motive self-relief, its province adversity and its means pessimism.

□ Both the "typhlosatiric" and the "typhlosardonic" have been powerful weapons in keeping "typhlo" words at bay. The tremendous usefulness of laughter and everything that is laugh-provoking among blind people (and those who try to help them) is an important clue to the nature of the obstacle encountered by anyone who attempts to integrate what pertains to blindness in a science suitable to carry the suffix "ology." That extraordinary modern writer Mr. John Barth in his novel *Giles Goatboy* envisages a

"Good" vs "Bad" Words

A Euphemistic Dodge

Typhlautocrats, typhlomancy, typhlosatiric

The Blind Don't Want an "ology"

fictional computer which is a kind of symbol of hard core science as he sees it, and he finishes by saying, "It never made a joke in its life."

Anyone who tries to write or speak of problems or difficulties of others always runs the chance of being assailed by the people with whom he thinks he is most sympathetic. It can be a little like a scandalous occasion when two well-known partners at the game of squash brought themselves into flagrant disrepute by turning on each other in the middle of a championship match, bringing their rackets down about each other's shoulders, though these sportsmen (who were expelled from the court on that occasion) were the best of friends both before and after this outburst.

A comparable imbroglio often ensues when any friend of the blind tries to give an opinion of any sort about blindness.

And any seeing person so engaged is likely to be told with a kind of virulent exclusiveness, "You will never know what it is to be blind." To invade that exclusiveness with help worth taking in is always primarily a *diplomatic* rather than a *scientific* undertaking. The genius of the field is the social genius, and though he may draw on many sciences, his fusing power must be governed by the extraordinary fusing power of humanism which in its own domain is centuries ahead of science particularly in dealing with that barrier: "Seeing people will never know what it is to be blind," which can mean so many things from, "Blindness is my prison," to "Blindness is my castle," but in any case tells the sighted individual he is in an area of trouble-shooting similar to a Himalaya for the mountain-climber.

Yet, blind people do not want big words used about it.

"Nothing large, technical or complicated," someone once tagged a program for handicapped people.

□ Never was the world told more eloquently to play help down. It is almost the same thing which scorn of the "typhlo-" words tells us: that there will in all conscience be stir enough caused by blindness without them. And we are being asked to be "human," rather than "scientific" in helping people.

The wit and wisdom of humanism has certain things to say about help which it is unlikely science will find time to prove for decades. A kind of evolution of ideas on the subject can be traced in such books as Bartlett's *Quotations*.

"Help wounds the pride of the conquered."—Publilius.

"Who helps a man against his will does the same as murder him."—Horace.

"The most melancholy of human reflections, perhaps, is that, on the whole, it is a question whether the benevolence of mankind does most harm or good."—Walter Bagshot.

"No people do so much harm as those who go about doing good."—Mandell Creighton.

"Philanthropy seems to me to have become simply the refuge of people who wish to annoy their fellow creatures."—Oscar Wilde.

"It is the self-sacrificing human that sacrifices others most ruthlessly. Self-sacrifice is a thing which should be put down by law. It is so demoralizing to the people for whom one sacrifices oneself."—Bernard Shaw.

Friend vs. friend

The Human Approach is Preferred

Sophistication concerning help has not invariably been satiric, however, and certain aphorisms on the subject have touched on the sublime; indeed we may suspect it is not possible for human beings to approach the sublime without bordering the subject.

To begin with, Terence strikes a high seriousness with, "I am a man, and nothing in a man's lot can be indifferent to me."

Far, far along in the development of thought, sweetness comes from a satiric source in Smollett's "To a man of honor the unfortunate need no introduction."

Burke rings the changes speaking of Fox's East India Bill: "He has put to hazard his ease, his security, his interest, his power, even his darling popularity, for the benefit of a people he has never seen." Homely wisdom finds an exalted charm in the oft-quoted saying of Stephen Grallett: "I expect to pass through this world but once. Any good therefore that I can do, or any kindness I can show to any fellow creature, let me do it now. Let me not defer or neglect it, for I shall not pass this way again."

But perhaps the greatest refinement with respect to help occurred when Prince Phetserath shocked Dr. Thomas A. Dooley a little by the calmness with which he received Dr. Dooley's announcement of departure, "having worked himself out of a job."

"That is what aid should be, doctor," said the Prince. "It should not make people more dependent on the aider, or upon the country from which it comes. Aid, ideally, should work itself into a position where it does away with any further need of itself."

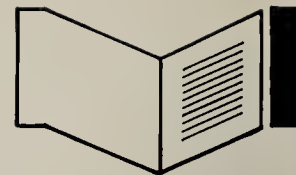
This concept is not a typical product of "science," but of "humanism." When the term "morganatic marriage" was explained to the former Wallis Warfield Simpson, she observed, "It sounds rather inhuman," effectively putting a stop to further mention of the subject.

This same observation about the "typhlo-" words is final and unanswerable. "Rehabilitation" is a word which has made its way onto the tongues of workers for the blind and has become so regular in its currency that objections to it can hardly be remembered. Might its acceptance be due in part to its having been approached from the humanistic rather than the scientific side?

Rehabilitation is concerned with survival, not necessarily of the "fittest." Across an almost endless front it challenges common ideas of fitness in some such humor as pervades one of the most lucid of modern poems which says:

The unfit die? The fit both live and thrive?
Alack! Who say so? They that do survive.
So, when her bonfires lighted field and plain,
Did Bloody Mary think of Lady Jane.
So Booth of Lincoln thought and so the high
Priest let Barrabas live and Jesus die.

Current Literature



The Blind in the Computer Age, by Yehuda Schiff. *Imfama* (South African National Council for the Blind, P.O. Box 1343, Pretoria, South Africa), Vol. 8, No. 10, October 1968, p. 2-4, 14. Description of the work of the Israeli Ministry of Social Welfare, Department for Rehabilitation in placing blind, partially sighted and otherwise handicapped persons in automatic data processing positions.

An Early Concern, by John T. Underwood. *Taproots* (Kansas State Department of Social Welfare, State Office Building, Topeka, Kansas 66612), Vol. 5, No. 3, November/December 1968, p. 6-7, 12. A short report concerning rehabilitation of the blind in Kansas.

Automated Vision Screening, by Philip W. Johnston. *Public Health Reports* (Superintendent of Documents, Government Printing Office, Washington, D. C. 20402), Vol. 83, No. 11, November 1968, pp. 907-912. Dr. Johnston of the Massa-

chusetts Department of Public Health describes the methods used in his state's mandatory annual screening process.

Turning Handicaps to Assets. Performance (The President's Committee on Employment of the Handicapped, Washington, D. C. 20210), Vol. 19, No. 6, December 1968, pp. 8-9. Results of a successful experiment by the Glidden Organic Chemicals Group in employing blind individuals to test the aroma and flavor qualities of synthetic chemicals.

A Matter for Concern, by J. N. Langdon. *The New Beacon* (Royal National Institute for the Blind, 224 Great Portland Street, London W1N 6AA, England), Vol. 52, No. 619, November 1968, pp. 282-285. The author has been engaged in a two-year research project survey of services for blind children and youth in England and Wales. He stresses the importance of appropriate non-medical counseling of parents following the diagnosis of

blindness (or potential blindness) in children.

The Industrial Rehabilitation of the Partially-sighted, by Joseph Herkes. *The New Beacon* (see address above), Vol. 52, No. 619, November 1968, p. 288-290. Mr. Herkes outlines the procedure used at an industrial rehabilitation unit in England.

Handicapped Girls & Girl Scouting, by Marian Weller Barnett. *Girl Scouts of the United States of America* (830 Third Avenue, New York, New York 10022), 1968, 94 p. Catalog No. 19-171., \$2.00. Section III of Part Two (p. 27-35) concerns visual impairments.

Sarang, by Roger A. Caras. Little, Brown and Company (34 Beacon Street, Boston, Massachusetts 02106), 1968, 308 p. \$5.95. Subtitled "The Story of a Bengal Tiger and of Two Children in Search of a Miracle," the "Sarang" of the title is a seeing eye tiger. (Juvenile novel.)

M.M.R.

News in Brief



■ The Internal Revenue Service has established a program to train and employ blind persons as service representatives. Their job will be to answer income tax questions from the general public.

The training program, begun largely through the efforts of Dr. D. C. MacFarland, Director of the Office of the Blind, U. S. Department of Health, Education and Welfare, and Nicholas Williams of the

I.R.S., is conducted twice a year in Little Rock, Arkansas. The I.R.S. expects to train and place 80 to 100 blind representatives over the next three years.

Applicants for training must be mobile and able to read braille. Information about the program is available at state rehabilitation offices.

■ Physicians in the Department of

Ophthalmology of the New York Hospital-Cornell Medical Center are using a battery of electronic tests to diagnose complex visual disorders. The electronic testing devices, which measure differences in electrical potential generated within the eye, give a complete profile of each cellular component of the retina. The tests are said to be particularly valuable in diagnosing disorders in infants,

the deaf, the blind, and the brain-damaged.

■ Prince George's General Hospital in Cheverly, Maryland, has introduced a program which will help disabled persons prepare for jobs before leaving the hospital.

The program is based on experience in other hospitals which indicated that patients who were depressed about their future prospects were less responsive to medical treatment than were those who began job training and counseling before their discharge.

■ Anne L. New has been appointed consultant for community relations to the National Accreditation Council for Agencies Serving the Blind and Visually Handicapped.

In this position, she will work on the development of a program to build wider understanding of and support for the work of the Council.

Miss New has recently served as assistant to the general director of International Social Service, American Branch, where she was in charge of fund-raising, public relations and work with volunteers.

Prior to that she was special assistant to the executive vice president of the National Recreation and Park Association.

■ Robert H. Barnhart has been named principal investigator of a demonstration project entitled "The Training and Placement of Blind Persons in Service Jobs in Hospital Settings." The project is being conducted by the American Foundation for the Blind with funds from the Social and Rehabilitation Service of the U. S. Department of Health, Education and Welfare.

Prior to his appointment, Mr. Barnhart served for two years as a planning associate on the staff of Economic Opportunity, Inc., in Atlanta, where he worked on anti-poverty programs in the field of health and welfare.

■ William J. Greene, Jr., has been appointed director, Public Education Division, of the American Foundation for the Blind. His appointment follows a decision to reactivate the position in order to strengthen the Foundation's efforts in the field of public education.

In 1964-1965, Mr. Greene served as director of public relations for the United States Pavilion at the New York World's Fair. More recently, he has been employed as a public relations consultant for the McGraw-Hill Book Company.

■ David L. Bollschweiler has been named national representative for the 207,918 disabled persons rehabilitated during fiscal 1968 by the State-Federal rehabilitation program.

■ William N. Groesbeck has been appointed chief of the Division for the Blind of the State of California Department of Social Welfare. He is replacing Perry Sundquist who has retired. Louis Lee has been named assistant to Mr. Groesbeck.

■ Three talking books are available for purchase from the American Foundation for the Blind. They are:

Champagne Living on a Beer Budget, by Mike and Marilyn Ferguson, \$4.25; *A Cookbook for the Leisure Years*, by Phyllis MacDonald, \$3.65; and *Cooking Without Recipes*, by Helen Levison Worth, \$6.85.

The three titles can be ordered by writing the Accounting Department, American Foundation for the Blind, 15 W. 16th Street, New York, N.Y. 10011.

■ The Cleveland Society for the Blind has just published three new pamphlets. They are: "Blindness," what it is, its causes, and the assistance available; "Have You Met This Man?", a look at the blind beggar; and "Glaucoma," which describes the disease's symptoms, how it destroys sight and how it can be arrested.

For more information about these pamphlets, write the Cleveland Society for the Blind, 1909 East 101st St., Cleveland, Ohio 44106.

■ A new pamphlet describing the various programs conducted by the four state agencies in Montana serving visually impaired persons is now available.

Copies of the pamphlet, called "Montana State Services for the Visually Impaired," can be obtained by writing to the Division of Blind Services, Department of Public Welfare, Helena, Mont. 59601

■ Correction: The address given for Ulverscroft Large Print Books on page 238 of the October 1968 **Outlook** was incorrect. The correct address is Ulverscroft Large Print Books, F. A. Thorpe, Ltd., Station Rd., Glenfield, Leicester, England.

Coming Events

March 1-5 National Association of Secondary School Principals. Annual Meeting, Chicago, Ill.

March 9-12 National Health Council, National Health Forum, New York, N.Y.

April 6-12 Council for Exceptional Children, Annual Convention, Denver, Colo.

May 11-14 National Braille Association. National Conference, Dallas, Texas.

May 25-28 National Conference on Social Welfare, New York, N.Y.

June 22-28 American Library Association, Annual Convention, Atlantic City, N.J.

June 30-July 5 National Education Association, Annual Convention, Philadelphia, Pa.

July 20-23 American Association of Workers for the Blind, Chicago, Ill.

Aug. 24-29 International Congress of Gerontology, Washington, D.C.

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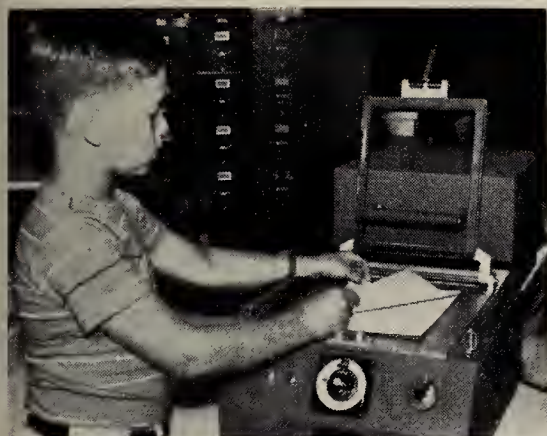
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84 Fifth Avenue—Suite 501, New York, N.Y. 10011

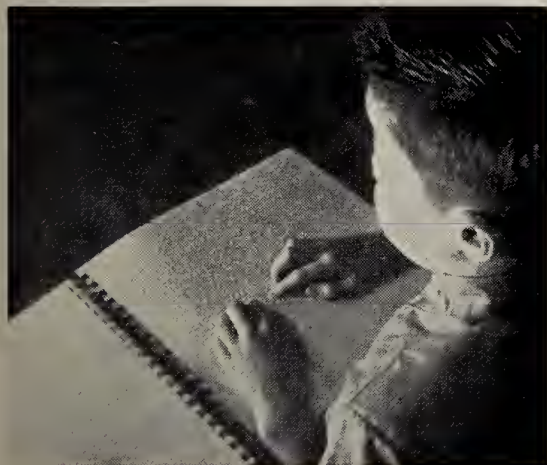


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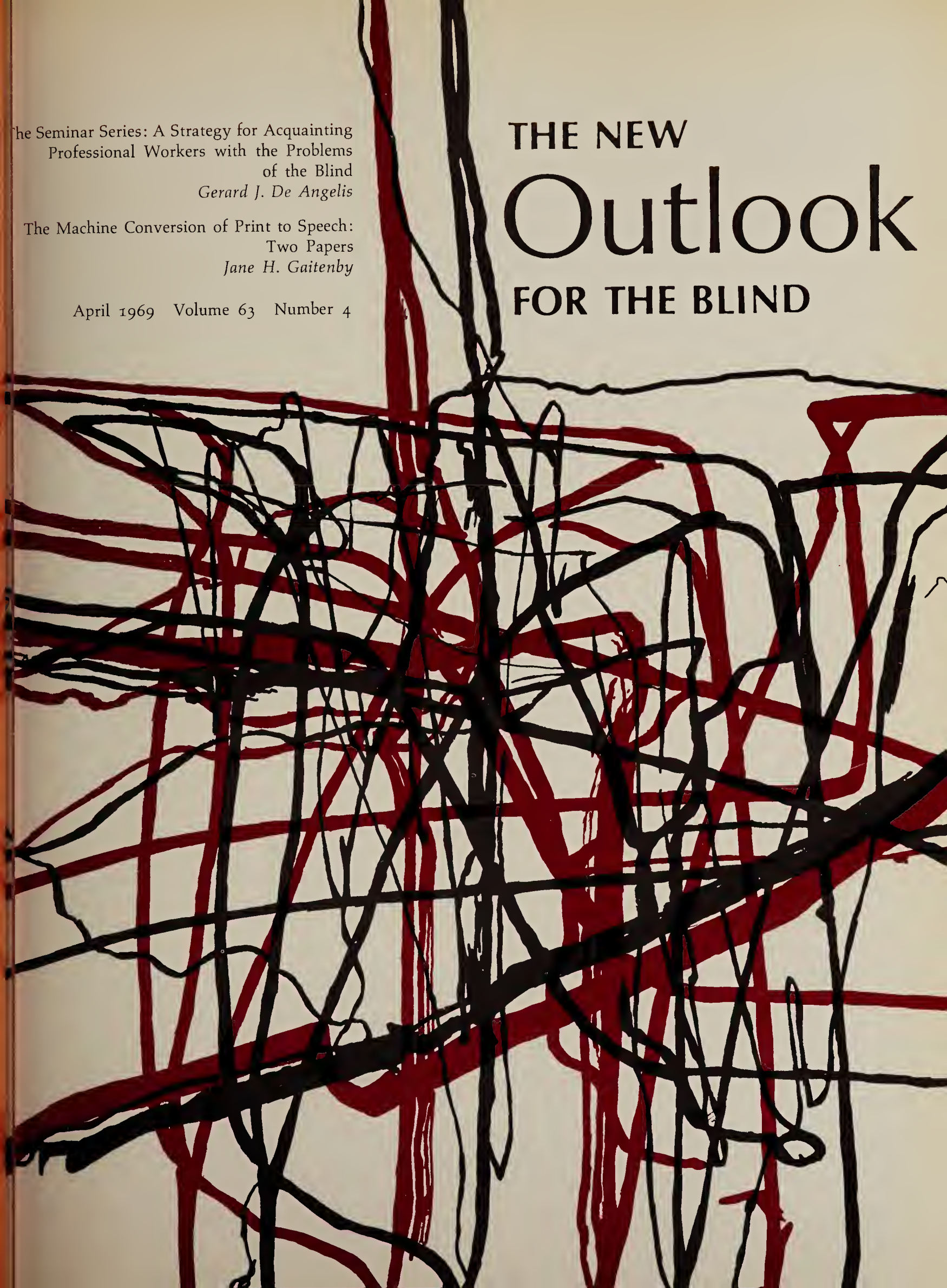
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The Seminar Series: A Strategy for Acquainting
Professional Workers with the Problems
of the Blind
Gerard J. De Angelis

The Machine Conversion of Print to Speech:
Two Papers
Jane H. Gaitenby

April 1969 Volume 63 Number 4

THE NEW Outlook FOR THE BLIND



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The Seminar Series: A Strategy for Acquainting Professional Workers with the Problems of the Blind

In 1962, the Metropolitan Society for the Blind was established as a Torch Drive Agency to serve the community and the blind people within a Tri-County area surrounding Detroit. The purpose expressed by the citizens' committee that established the agency was, "to develop services and maximum community influences which will minimize the causes and effects of blindness."

In order to begin this task, several strategies and tactics were considered as possible courses of action. This paper will describe only one of these strategies: seminars for professional workers in the community.

□ A series of seminars for professional workers was instituted as a way of attempting to change some of the negative impressions about blindness that are generally present in the community. The point of view expressed in these seminars was that blind people can readily be served by competent professionals if these workers have received a basic orientation in the problems of blindness. We wished to show professionals from other service agencies that the problems of blind persons are not so unusual that they can be handled only by highly specialized workers. There *are* certain areas in services for blind persons—such as training in braille or mobility—that require workers with specialized skill, and these areas were discussed. But we wanted our seminar participants to understand that aiding blind persons would, in many instances, not require unusual skills but rather a basic professional approach.

Blindness was to be shown in its proper perspective, as a physical disability which causes certain problems. By separating blind individuals from the community in order to deal with these problems, we often exaggerate the extent of their problems and may even create other problems. The purpose of the seminars, then, was to show how blind people could be included in the community rather than isolated from it.

In order to assess the kind of reception such a proposal might receive, we distributed the following survey letter to approximately 100 agencies in the area.

November 9, 1962

Dear Agency Director:

As you may know, the United Community Services recently established the METROPOLITAN SOCIETY FOR THE BLIND to develop expansion of services to blind persons in Greater Detroit. Enclosed, you will find material describing some of our aims and purposes.

As one of our first steps, we are proposing a seminar series for professional workers. The program is designed to further understanding of personal and service

GERARD J. DE ANGELIS

Mr. De Angelis is director of services at the Columbia Lighthouse for the Blind, Washington, D.C. During the period discussed in this article, he was rehabilitation specialist for the Metropolitan Society for the Blind, Detroit.

A Basic Orientation for Professionals

...

A sample survey letter

factors specific to blindness. We believe that many problems which blind persons must solve are not so unique as to require specialized disciplines.

The seminars will include presentation and discussion of case material selected to illustrate a considerable range of reactions to blindness. The sessions will be two hours each, once a week over at least a ten-week period. We hope to keep the groups small—not more than twenty members—but the series can be repeated as many times as necessary to meet all requests.

Case material will be provided by the Metropolitan Society, and the only cost will be approximately \$2 per person for a textbook. It is felt that a lecture series would not provide as valuable an experience as the seminar, with members of the group presenting the cases for a simulated “staffing” discussion. Specific application will be made to the Detroit community.

Because of the important part your Agency plays in the community’s welfare program, we are inviting participation in these seminars by one or more members.

The purpose of this letter is to request information which will enable us to measure the extent of agency interest and ability to take part in the seminar series. Will you please check the enclosed card and return it to us? Any additional comments or suggestions you may care to make by letter or telephone will be most welcome.

You will be kept informed as the plan develops. We look forward to useful and productive seminar series.

Sincerely,
McAllister Upshaw, ACSW
Executive Director
Gerald J. DeAngelis, MA
Rehabilitation Specialist

□ We had to make follow-up contacts by phone and in person to convince representatives of key agencies to agree to attend even the first session. Many agencies resisted the idea of devoting valuable staff time to such a small portion of their caseload. Supervisors came initially out of politeness, or out of a curiosity to see if the seminars would be worthwhile for their workers. Our most optimistic thoughts were for line workers, and we planned our sessions to stimulate their interest enough that they would return. But many of the supervisors continued to attend for the entire series of ten weekly sessions, along with their workers.

The text for the seminar was Finestone’s *Social Casework and Blindness*. To supplement the text, the agency director had previously prepared, in mimeographed form, 80 adequately disguised case summaries.

In true seminar fashion, each participant was given the task of presenting either a case or a chapter from the text for lengthy discussion. Most of the participants read their assignments during the week between sessions. Despite their busy schedules, most of the participants were extremely cooperative and highly enthusiastic about our subject.

There was a wide variety of presentations at the seminars. Perhaps the high spot came during the fourth and fifth sessions, in which some role playing, thinly disguised as mobility instruction under a blindfold, demanded considerable personal involvement.

Initially, the executive director conducted the sessions. There were a few

Resistance to the Seminar

Participants were highly enthusiastic

guest speakers from outside the agency, among them representatives from the American Foundation for the Blind, and from Leader Dogs for the Blind in Rochester, Michigan. But, gradually, other members of our staff assumed the major responsibility for leading discussions.

□ After this first series of seminars, we began to make use of some of our newly established channels of communication with other agencies to launch other programs. An established sister agency, in consultation with us, developed a personal adjustment program, and the public school systems started a demonstration program on the problems of mobility. Both of these programs helped to create the type of image of blindness which our agency wished to present to the community.

By 1965, we were ready to place greater emphasis on the suburban counties in order to extend our influence into their professional communities. Macomb County contained approximately 500,000 people; its blind population was estimated at about 700. There had been only 40 clients within this county who had made their needs known directly to the agency since its opening. Oakland County had a somewhat larger population—approximately 900,000—and had a potential blind population of 1,000. Here again, case finding had not been emphasized but we had made contact with 80 blind people in three years.

We had learned a few lessons from the first series of seminars and had altered the program accordingly; we maintained the same basic approach, keeping the same text, but stopped using the entire casebook. We added a most valuable piece of material—Cholden's book, *A Psychiatrist Works with Blindness*.

Several knowledgeable people in these two outer counties felt that the number of sessions should be reduced from 10 to five because transportation was more difficult in suburbia than in the city. By this time, the problem was to decide what to exclude from our program rather than to find sufficient material to include. Assignments were shortened as we came to realize that a heavy reading requirement was somewhat unrealistic.

In each of the counties we were invited to make use of the United Community Services building, and had the advice and participation of experienced community organization people who helped select the key agencies and insure initial participation. An ad hoc committee was formed by the community organizers to arrange for the seminars.

After an agreement had been reached by the committee to conduct the seminars, we announced the seminars with the following notice:

NOTICE

February 16, 1967

TO: SEMINAR PARTICIPANTS
FROM: GERARD J. DeANGELIS, REHABILITATION CONSULTANT
SUBJECT: SEMINAR SERIES ON BLINDNESS

We are pleased to note considerable interest in the proposed Seminar. Your agency has been selected to attend. The first session will take place on Wednesday, March 1,

Follow-up Programs

Expansion to suburbs

Community groups were cooperative

1967 from 10 to 12 A.M., and continue for the next four Wednesdays. The final session will be on March 29.

We are pleased to accept Mr. Hunt's gracious offer of the use of his meeting room for the series. The address is:

UNITED COMMUNITY SERVICES BUILDING
132 Franklin Boulevard
Pontiac, Michigan
Telephone: 338-9211

The tentative outline is enclosed. We expect to cover these basic topics but may have to alter the sequence because of the availability of resource people who will be present during the meetings. Textbooks will be available at a minimal cost of \$3.

We expect to limit the group to 15 or 20 in order to maintain the seminar approach. Should you know of anyone who has shown particular interest in attending the sessions who was not invited, please let us know so that we can invite him if there is sufficient space. If you or your representatives cannot attend, we would appreciate a call. We are looking forward to a productive series. Please return the enclosed registration card(s).

NOTE: We have enclosed two copies of a reprint entitled *Blindness as a Factor in Disability* by McAllister Upshaw. We plan to discuss some ideas in this paper at our first session and hope that you will be able to familiarize yourself with its contents before you come.

There was a press release to the suburban newspapers which, when published, lent a sense of urgency to those attending. It read as follows:

PRESS RELEASE

Press release

PROFESSIONAL SEMINAR ON BLINDNESS

Contact Person:
Gerard J. DeAngelis
832-1234

Under the joint sponsorship of the Metropolitan Society for the Blind of Detroit and the Macomb Planning Division of the United Community Services, a series of seminars is being held for selected professional personnel of Macomb's Health and Welfare Agencies.

The first session on October 13, will feature McAllister Upshaw, Executive Director of the Society, as its first guest speaker. He is the first of a series of speakers who are specialists in blindness, including representatives of Leaders Dogs for the Blind in Rochester, Michigan, and the Rehabilitation Institute of Detroit.

Interested professional workers who may wish to attend are asked to call Mr. DeAngelis at The Society in Detroit, 832-1234. The first meeting will take place at the Macomb County United Community Services' building.

☐ Smaller groups of 12 and 15 attended the subsequent sessions. The course outline for the third and final series, held in March 1967, follows:

The Course Outline

PROFESSIONAL SEMINAR SERIES ON BLINDNESS

Coordinator: Gerard J. DeAngelis

- March 1 A. Introduction—Historical Perspective—Executive Director, NSB
 B. Social Casework—Social Service Consultant, MSB
 Readings: Text, *Social Casework and Blindness*, Finestone (ed.)
 Introduction and Chapter I
 Reprint, *Blindness as a Factor in Disability*
- March 8 A. Mobility and Children—Peripatologist, Oakland County Schools
 B. Leader Dogs for the Blind, Rochester, Michigan—Training Director
 Readings: Chapter IV—Assorted pamphlets
- March 15 A. Rehabilitation Teaching of Adults—Teacher, State Agency for the
 Blind
 B. Volunteer Services—Chairman, Tri-County Braille Services
 C. Adjustment Center for Adults—Coordinator of Blind
 Program
 Rehabilitation Institute of
 Detroit
- Readings: Text, Chapter II
- March 22 A. Vocational Rehabilitation—Counselor, State Agency for the Blind
 B. Detroit League for the Handicapped—Director, Ferndale Office
 C. Vocational Training and Development—Vocational Consultant, MSB
 Readings: Text, Chapter III—Assorted Pamphlets
- March 29 A. Library Services—Librarian, Wayne County Library
 B. Overview—Coordinator

☐ Our efforts have drawn both positive and negative responses. The service structure existing in the community and the interest which was developed on the part of many workers is not fully utilized by our staff at the present time. Newly developed skills remain idle and although they may be tapped at some future date, we need to develop them now. Only lack of time has prevented us from doing this. Plans for the future may extend in many directions, but the value of this particular seminar technique has far exceeded our expectations. We are considering follow-up one-session workshops to discuss new developments in the community. A number of seminar series may be held for specific professional and nonprofessional groups who customarily come in contact with blind people. We might, for example, give seminars for nursing home personnel, emphasizing activities of daily living, orientation and crafts; we might also give seminars for visiting nurses, occupational therapists, and perhaps county agricultural agents.

As a technique, a tool, the seminar series has proven to be much more effective than one-day workshops, which are quickly forgotten. Planning the content of a seminar series is important, but pulling together the right people through personal contacts and telephone conversations is even more important to initial success.

Positive and Negative Response

Seminars more effective than workshops

We found that there was a distinct advantage in our being an agency new to the community. People came out of curiosity or politeness and we were careful to see that their interest grew. Because we were not tied down with providing direct services in the beginning (although they were badly needed in the community), we were able to consider the long-range problems of improving the image of blindness in the city. We had a chance to consider alternative stratagems.

□ Established agencies for the blind in other communities could benefit from greater positive contact with other agencies in their community. They could use this contact to spread a more acceptable climate for their consultation, instead of attempting to provide all the direct services themselves. This is not a new concept, but it cannot be implemented without very conscious planning and follow-through. The tradition of the United Community Services in Detroit provided the groundwork for this plan, and careful attention to strategy and tactics in community organization work with specific disability groups led to its success.

Implementing the Concept

Cholden, Louis: *A Psychiatrist Works with Blindness*. American Foundation for the Blind, New York, 1958.

Finestone, Samuel (editor): *Social Casework and Blindness*. Research Center, The New York School of Social Work, Columbia University; American Foundation for the Blind, New York, 1960.

Upshaw, McAllister: "Blindness as a Factor of Disability." *New Outlook for the Blind*, 59, 1965, 301-308.

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Prisoners Will Tape Books for the Blind

A program of taping books which will make available another source of "reading" material for the blind has begun at Patuxent Institution, Maryland. A group of volunteer prisoners will begin transferring books onto tapes when tape-recording booths, now under construction, are completed.

Professor Joseph Whitehill, who conducts a creative writing seminar at the Johns Hopkins University, and Dr. Harold Boxlow, director of Patuxent, have worked together to put the idea of prisoner volunteer work into action.

Money for the recording booths came from the Baltimore chapter of Mensa, an organization of persons with I.Q.'s in the upper two percent of the nation. Professor Whitehill summed up the goals of the project when he said, "The hope is that many of the convicts, given an opportunity to use their creative and leadership abilities within the prison, will prove and discover for themselves that they can be positive assets to society."

The Establishment of a Blind Rehabilitation Center In a Rural State

The North Dakota Division of Vocational Rehabilitation is the agency charged with assisting the state's blind persons in that sparsely populated state. I joined the staff as a vocational rehabilitation counselor in August, 1960 and became especially interested in working with blind persons.

In September of 1962, I completed the Orientation and Mobility course at Western Michigan University, after a year's leave of absence from the agency.

I then set about deciding how to best make use of this training and reach the most blind persons. Recognizing that orientation and mobility skills have to be taught individually and require rather long term, intensive training, I decided that itinerant instruction was not the answer. The best solution seemed to lie in having blind persons come to a central location within the state to receive their training. But once they were there, orientation and mobility instruction would fill only two hours a day. What were we to do with the remaining time?

With the assistance and direction of Mr. Merle Kidder, State Director, a plan was formulated to establish a full-time adjustment-training and pre-vocational evaluation program. We established the training center at Grand Forks, because it is the home of the University of North Dakota, which has a comprehensive, modern medical center rehabilitation unit. Services in the rehabilitation unit include physical therapy, occupational therapy, social, nursing, psychiatric, pre-vocational, speech and hearing, dietary, counseling, recreational activities, and in-patient facilities. At the time, there were no services dealing specifically with blindness. The University itself offered dormitory and food services, recreational activities, a cafeteria, concerts, sports, and an opportunity for the blind trainee to live in a stimulating environment. The setting would also encourage the trainees to develop independence by practicing skills as they learned them.

□ A certified brailist volunteered to be a temporary braille teacher and a woman who had taught business education was recruited as a typing instructor. (She later learned braille, and took over both teaching assignments.) She and one of the home teacher counselors developed a new system of teaching braille by introducing the contractions along with the alphabet, enabling the adult to learn braille faster than was possible by previous methods. Staff members of the Medical Center Rehabilitation Unit and Vocational Rehabilitation went to the Blind Section of the Veterans Administration Hospital in Hines, Illinois, to complete their training.

Finally, the program was ready to begin. Utilizing the skills of the special

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Recruiting Instructors

staff, the services of the Medical Center Rehabilitation Unit, and the facilities of the University, the program began with two students in February, 1963.

The students' daily schedule consisted of seven hours of instruction: two periods of orientation and mobility, two periods of pre-vocational evaluation, one period of typing, one period of braille, and a period of physical conditioning, counseling, or individual study.

□ Through the close cooperation of a Grand Forks physician who specialized in diabetes, the program soon developed particularly well for diabetic blind persons. Because of the 24-hour nursing service at the M.C.R.U., and the active participation of the staff, it soon became possible to give these diabetics a new outlook on life. As the program progressed, their blood sugar levels remained more constant, they suffered fewer insulin reactions (the insulin intake was even reduced in some cases), and they felt better than they had in years.

On a typical day, a blind diabetic would report to the nursing service before breakfast for a urine sugar test and insulin. Urine sugar tests were also conducted before lunch, dinner, and bedtime so that each patient's progress could be adjusted accordingly. Most of the diabetics were put on a five-meal feeding schedule: breakfast, a morning snack, lunch, an afternoon snack, and dinner. Some were also required, at times, to have a bedtime snack in order to maintain proper blood sugar level throughout the night.

While this number of daily feedings may seem cumbersome, in practice it was not. The dietary service had all the snacks prepared and the students ate them during their class breaks. Eating larger meals less frequently can cause fluctuations of the blood sugar level from hyperglycemia to hypoglycemia. In a "brittle diabetic," the blood sugar level could go from 500 mgm to 40 mgm or less, in a matter of minutes. The objective, of course, was to achieve and maintain constant blood sugar levels as near to normal as possible. This was accomplished by the intricate juggling and testing of caloric intake and amounts of insulin.

We found that most diabetics could function best on a mixture of regular and lente insulin. This also made it easier to regulate them. If a person had an insulin reaction before noon or in the early afternoon, we could reduce the regular insulin. If the reaction occurred in mid or late afternoon we would reduce both insulins. If the reactions occurred in the early evening or night hours we could reduce the lente insulin.

By staying as close as possible to normal blood sugar levels, the diabetic not only feels better and more alert, but also lessens the possibility of going into acidosis, which can cause death. Many physicians feel that careful regulation will also promote better general health, better circulation, less likelihood of strokes, and increased longevity.

Therefore, we took frequent blood sugar tests. If they were consistently high we thought in terms of reducing caloric intake wherever possible. If the caloric intake could not be reduced then the amounts of insulin were increased. Similarly, if the caloric intake was correct for the individual (size, weight, activity,

Program was Particularly Helpful to Blind Diabetics

Feeding schedule was not cumbersome in practice

Frequent blood sugar tests

and metabolism rate) and the blood sugar levels were good, but he still had reactions, we would think in terms of adding another feeding period out of the present caloric intake, rather than reducing the insulin and upsetting the other balanced factors.

The medical phase of the program proved highly successful. When the diabetic student completed 16 weeks of adjustment training and pre-vocational program he was in peak health.

The training phase proved equally successful. By the end of the term, the students had learned the skills necessary to function without sight, had achieved a realistic concept of their abilities and limitations, and an intellectual understanding and better emotional acceptance of their handicap; finally, they had acquired independent mobility, which would allow them to put their newly learned skills to use.

During the training, the vocational rehabilitation counselor kept in close contact with the students and with the program staff. With this kind of cooperation among vocational rehabilitation personnel, it was usually possible to define a vocational goal for each student near the end of the training period. This enabled most students to go into vocational training without delay.

During the training period, the student's family would be contacted periodically and informed of his progress and newly found skills and proficiencies. The families were also requested to visit the training program, as were the counselors. After completing vocational training, the clients were assisted by selective job placement services. Provisions were made for each client to receive follow-up services, including specific orientation and mobility training or retraining.

Involving the family

Several things make this program unusual and interesting. It was the first blind rehabilitation program in the United States to be conducted in conjunction with a multi-disability rehabilitation center. It was also perhaps the first, if not the only, blind rehabilitation center to function on a university campus and actively participate in campus life.

□ The decision to use the dormitories, cafeteria, and other University facilities had interesting results. The University milieu was congenial to the rehabilitation process. The students were at first somewhat apprehensive about such situations as having a roommate, going through the cafeteria line, or performing daily activities in front of thousands of university students. But the university students—a generally adaptable group—readily accepted the blind clients into university life.

Implications

The most important aspect of the training is that it took place in a natural, integrated environment, instead of the artificial environment of an all-blind rehabilitation center. The youthful energy of the University students and the intellectual air of the campus also seemed to be beneficial to the blind students. Indeed, it encouraged some of them to continue their educations.

As the students progressed, they began to understand one another's conditions, problems, history, personalities, and rehabilitation processes. Thus each one developed tolerance, understanding, and, frequently, insight into himself and his attitudes regarding his own particular handicap.

Patterns of Change in Disturbed Blind Children in Residential Treatment

About four years ago, the authors of this paper, charged with the task of rehabilitating an institutionalized group of 20 severely disturbed blind children, ranging in age from six to 12 years, began to formulate and test hypotheses about the factors impeding the development of these children and the methods by which they could be psychologically rehabilitated. We assumed that because of their blindness the children had from infancy been deprived of the stimuli necessary for development and the experiences that lead to a mutually satisfying mother-child relationship and that such deprivation had led to the deviations we observed in all aspects of ego functioning—in intellectual achievement, emotional stability, physical competence, ability to engage in satisfying interpersonal relationships. In some instances, the deviations had already been aggravated by congenital defects affecting the central nervous system.

On the basis of this hypothesis, we assumed that experiences could now be provided that, if appropriately matched to the developmental levels of the child, would provide him with more effective methods of adaptation than he had previously adopted and would thus facilitate more normal development. We, therefore, have concentrated our efforts on carrying out an educational therapeutic program that would provide such experiences and will here describe some of the changes that have taken place in the children. The institution that has been involved is the Children's Division of the Syracuse Psychiatric Hospital, located in Fairmount, a suburb of Syracuse, N.Y. Thus far, all the children in this residential unit have been blind children, though plans are now underway to accept other children. The staff has consisted of a child psychiatrist, a clinical child psychologist, a supervising psychiatric nurse, a staff nurse, a recreation director, four special education teachers, a psychiatric social worker, an occupational therapist, and several previously untrained child-care workers.

□ The children were admitted to the program over a two-year period, beginning four and a half years ago. Thus, we have known all of them for more than two years and many of them for more than four. When admitted most of them appeared to be functioning at a severely retarded level; in fact, the parents of several of them had been told they were retarded. However, after the children had been with us for some time and had developed trust in the staff, manifestations of their intellectual capacity became evident and we realized that most of them were of at least average intelligence and many

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Providing more effective methods of adaptation

The Children

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were very bright. Because of technical difficulties, previous testing of them had been misleading.

The impression of severe retardation was augmented by several behavior patterns, some of which seem to be characteristic of blind children. There was a great deal of rhythmic rocking, head rolling, body rolling, head banging, and whirling. Fingers or fists were constantly being stuck in eyes. Language was almost always used in private ways incomprehensible to members of the staff or other persons. There was meaningless parroting of television commercials, phonograph records, or statements the children had heard people make. Pronouns, when used, were often reversed; "I" was never used. Mutism with occasional guttural sounds was frequent. Thus, the children isolated themselves from both peers and adult staff.

Among other characteristics were suspicion, hostility, fright, withdrawal, and extreme negativism. The most ordinary experiences would be regarded as terrifying. Though many of the children had learned the necessary skills for self-help, they retreated into helpless dependency.

Very few of the children had developed any skill in moving about; most of them released their motor energy while remaining almost in the same spot by using rhythmic or whirling movements. Some tended to overbreathe when excited, and some vented their feelings through screaming, scratching, and biting. Two or three retained feces; one had developed an enlarged colon as a result.

None of the children had had any successful school experiences. Two or three had learned a little braille, but none had been able to profit in any consistent manner from a planned and sequential educational process. Those who had been to school had been dropped out and the others had either remained at home or had been sent to institutions for the retarded or the mentally ill.

When we encountered the children, their interest in the external world and in learning seemed nonexistent. Their attention span was short, and their frustration tolerance was extremely low.

□ The heart of the program lay in an expectation that each staff member would show the same respect to each child regardless of his individual developmental level; would provide the child with interpersonal and other kinds of experiences to help guide him to the next step in development; and would patiently allow him to achieve that step at a speed consistent with his specific needs.

Such impartial respect was not easy to achieve. Many of the children developed subtle and skillful methods of attracting the staff's attention not only to meet their own needs but also to find out whether they could render staff members less effective in treating some children than others. Other children, because of their silence and self-effacement, made it easy for the staff to forget about them. Nevertheless, all the children were enormously sensitive to any degree of difference in a staff member's attitudes toward particular children. They obviously felt far more secure when they knew appropriate care was being provided equally for all. In spite of the difficulties, the staff did

Behavioral patterns obscured children's assets

None had successful school experiences

The Program

Children extremely sensitive to staff attitudes

achieve a high degree of impartial respect, and this, more than any other element in the program, may have helped the children realize that they were free to experiment with many forms of behavior in search for paths to identity and development.

□ The program has also placed emphasis on continuing the children's relationship with their parents, largely through weekend visiting. Most of the children have gone home almost every weekend since their admission. This has meant that they have continuously had to adapt to the contrasting personal environments of home and hospital. The psychiatric nurse, the psychiatrist, and the psychiatric social worker have also maintained contacts with the parents, usually informally but occasionally in formal appointments, at their own or the parents' request. Some changes in attitude have occurred in many of the parents, especially as they have come to recognize that their children are not retarded. But, on the whole, the parents have not altered their basic rejection of the children and continue to wish for a child that is "normal" in every respect.

Some of the children have learned to perceive their parents' rejection of them without having to give up an emerging sense of identity in favor of utter compliance and without having to accept the idea that they are peculiar and incompetent. With the help of the psychiatrist and selected staff members, they have been working through feelings of extreme anger toward their parents, anxiety about such anger, and an increasing sense of separation from them accompanied by intense grief. A few have emerged from this emotional struggle with greater tolerance for their parents and greater confidence in their ability to adapt to them. None of the children, however, has actually completed this working-through process.

One aspect of the program that has helped to decrease anxiety in the children has been the provision by the psychiatrist of all medical care and supervision, except in instances of severe illness or injury. All the children at first were terrified of even painless medical procedures. As they became familiar with the psychiatrist through frequent contacts with him, they developed enough trust in him to accept, and in some instances even to participate actively in, medical procedures, including the physical examinations carried out by him. This led to some children learning to cooperate readily with the dentist and with the pediatrician when he is called in.

□ In spite of careful preadmission preparation, the children always reacted to admission with a great deal of separation anxiety and grief, which each revealed in his own way. Some children on admission wept quietly, withdrew completely, behaved frantically, or talked constantly about gratifying experiences they had once had. None attempted to cling to staff members for comfort.

Members of the staff could do little at this time other than to tell the children about the care they would receive and when they could next be with their parents and to help them with the daily tasks of bathing, washing, toileting, dressing, and eating. No physical examinations were attempted.

After admission (shortly afterward or long afterward) some regression oc-

Continuing Child's Relationship With Parents Stressed

Psychiatrist's role

Regression and Progress

curred in most of the children and was accepted by the staff. Many of the children gave up skills they had painfully acquired over years of home training. They ate with their fingers, refused to eat altogether, or demanded special foods. They refused to wash, bathe, or dress themselves, although nearly all had performed these tasks with skill before admission. Many of them began wetting and soiling themselves, although they had not been doing this previously.

Psychological testing was, of course, impossible in this period, as was group or individual psychotherapy in the usual sense. As in the admission period, the attempt to establish meaningful relationships was made through giving the children practical help in the daily tasks of living, such as cutting up their food, serving and feeding them, bathing them, cleaning up their vomitus and feces, and making their beds. All staff members, professional and nonprofessional, participated in these tasks.

During their regressed phase, most of the children began exploring the environment, primarily by touching and listening. A child who seemed completely out of contact with reality, for example, would be found whispering something he had heard somebody say in person or on the radio or phonograph, minutes, hours, or days before. Some children would mimic staff members or other children without interacting with them in any other way. Some clapped, stamped, whistled, or clucked as they went about orienting themselves by sound or touch to their environment.

□ Very gradually, a few children began to evince an interest in having mutual relationships with people. Others only seemed to be "with" people; they initiated contacts, were compliant, and talked relevantly but their interaction was superficial and manipulative. Usually, a relationship was begun by a staff member making himself available to a child either to help him with a task such as dressing or to give him an experience such as going for a walk, swinging, jumping on the trampoline, or playing a record. The child would at first simply move closer, touch the adult, or talk in obscure phrases. Some children valiantly tried to comply with the adult's wish even when they did not want to participate in the suggested activity. Others responded negatively, obviously expecting reproach and punishment.

Some children who seemed to be relating with adults best because they knew how to talk intelligibly achieved the least genuine relationships. As time passed, they failed to progress past the stage of asking and reasking questions or talking about irrelevant and meaningless topics. Other children who at first seemed much less ready for human contact because they proceeded so cautiously eventually formed meaningful relationships both with staff members and other children.

After breaking through their isolation to make a contact with another person, the children would begin experimenting with others—at first, usually, only adults. They would gradually learn to distinguish between the roles of the various staff members and to relate differently to different persons, dependently with some and independently or even negatively with others. As they became more confident, they would usually attempt to manipulate

Dealing with regression

Beginnings of Interaction with Others

Many related more easily to adults

adults by conversation, compliance, defiance, or negativism, and often mimicked the admonitions and reproaches they had received at home and thereby revealed much about their previous relationships. From such responses, the staff could begin to recognize the carefully concealed personalities of the children and their highly individual ways of looking at life and people.

□ At some time during the course of this experimenting with relationships, each child would begin to pay attention to other children and to the surrounding environment. No child remained completely aloof and isolated; all formed relationships of some kind with several persons. But these relationships were developed by some children more rapidly than by others and were constantly changing. The children would identify first with one adult and then with another as though they were attempting to work out different ways of feeling, thinking, and being as they made their way toward less distorted conceptions of themselves. A whispered word, an interrupted gesture, a slight change in the verbal pattern heralded major changes to come. As the children grew self-confident because of many staff-planned experiences of success, they began to develop genuine respect for each other and to form strong friendships. Eventually they came to know each other very well and in some cases far better than the staff knew them. They were extraordinarily aware of each other's feelings and actions. They were tolerant of each other's behavior and often perceived the meaning behind it. Sometimes even when a child was attacked by another and his feelings deeply wounded, he could be objective about why the other child had behaved as he had. Gradually some children revealed themselves as followers and others as leaders; some as passive and submissive and others as active and dominating; some as quiet and others as noisy; some as given to intellectuality and others as given to intuitive responses; some as humorless and others as full of humor.

The struggle for a sense of identity met with obstacles, too. For example, Jane, a severely disorganized psychotic child, was made intensely anxious by an even more disorganized child, Mary Ann, and would immediately leave the room when she became aware that Mary Ann had entered. Whenever Mary Ann would scream, stamp, and bite herself, Jane would become panicky and burst into tears.

□ The children's growing ability to relate to people and to identify their own individuality was revealed in their changing use of language. At first nearly all the children spoke to staff members only in meaningless phrases; they used language not to communicate but to conceal. But gradually, as they learned that the staff members could be trusted and were trying to understand them, many of the children learned to respond with some relevance and intelligibility, with less secretiveness, and with a more appropriate use of pronouns.

In their increasing interactions with each other, the children used language to mimic, ridicule, tease, manipulate, or simply to play with a kind of code that they all seemed to understand and to enjoy. Perhaps what they enjoyed most was the knowledge that they knew what they were talking about but the staff members in attendance did not.

Noticing Other Children And the Environment

Struggling for a sense of identity

Use of Language

The children's use of language has provided an instrument for measuring changes in self-concept and levels of anxiety. When we first knew them, most of the children referred to themselves by name, or by the pronouns "he" or "she" or "you." Some have gradually begun to say "I," although even those who have improved most still have only a tenuous hold on this self-identifying pronoun.

□ As the children developed relationships with staff members and with other children, their anxiety notably decreased. They showed fewer signs of panic when introduced to new experiences or to strangers. Their reactions became less extreme and more controlled in expression. They began to exhibit defense mechanisms against anxiety. Perhaps the most important influence in reducing anxiety was their certainty that they would be dealt with candidly by the staff. Some children, in an effort to master their anxiety, began to talk constantly about situations that provoked anxiety in them. Some, when in anxiety-provoking situations, would talk about previous situations that had been comforting to them.

As the children's anxiety decreased, they reacted with less negativism, accepted limitations on their behavior, tolerated frustration better, and began voluntarily to explore the space around them. Since the unit is in an open building situated on spacious grounds and the children have been free to go in and out, opportunities for exploration have been extensive. A few of the children have explored the whole area thoroughly, and most of them have become well enough acquainted with it to be able to get about in it efficiently. They often go outside to seek privacy and so reduce the anxiety generated by increasing contacts with others.

□ Thus it is obvious that another respect in which the children have changed is mobility. Apparently, anxiety and fear of aggression had as much to do with the extremely constricted mobility they had shown on admission as did fear of injury or disorientation in space. While the whirling, rocking, and rhythmic movements have persisted in most of the children, the frequency and intensity of this type of behavior have greatly decreased and the children's ability to move in a relaxed, coordinated fashion in play, exploration, or aggression has noticeably improved.

Other children have learned to roller skate and to dance. However, the motor experience in which the children seem to feel most free is swimming. They have been taken regularly to a nearby indoor pool in the winter and to a lake in the summer. Many of them rapidly lost all fear of the water and especially seemed to enjoy the three dimensional freedom of underwater swimming. However, they responded negatively to attempts to teach them to swim; they wanted to learn to manage the watery environment on their own or at least to control what the adults did with them in the water. Only after many months of exploring to find out what they could do by themselves were any children ready to learn to swim in the usual way.

As the children's anxiety decreased, so did their fear of aggression, their own and others'. When they first came to the unit, most of the children made attacks only on themselves—biting their arms, violently slapping their faces,

Anxiety Was Reduced

Mobility Was Increased

Swimming was favorite motor experience

Changes in attitudes toward aggression

or banging their heads against objects. At the same time, they were very much afraid of being attacked by someone else and usually would move rapidly away if anyone at all touched them. After a while, they began tentatively to attack objects—a toy or something metal that made lots of noise, like a window screen. Gradually they became destructive of things and eventually they began directing their aggression against staff members by scratching, pinching, biting, kicking, and hitting them. While the staff members often protected themselves by moving quickly out of range, they responded with equanimity, thus helping the children to feel safer in directing their aggression outward.

As the children developed relationships with other children, they learned to assert themselves aggressively with each other. They still try to control the anxiety they feel about their own aggressive actions by finding reasons why the other child “deserved it” or by setting up rules under which aggression might be expressed. Often the whole thing is turned into a game in which a child, known by the others to be very angry but completely incapable of showing it and unwilling to defend himself, is playfully attacked. Sometimes, rather than engaging in combat himself, a child will direct others to tease or attack the object of his anger. The children talk a lot about aggression and whether or not people who engage in it are “good” or “bad.” At times a child will attempt to keep his feelings of aggression from getting out of his control by asking permission to pull someone’s hair or bite him.

After a while the children’s primitive, highly aggressive outbreaks began to decrease. They were replaced by more ritualized and controlled forms of aggression in some children and by a redirecting of energies into environmental exploration, program activities and learning in others.

□ As these developments have taken place, the staff has attempted to keep pace with the developmental needs of the children, providing new experiences of all kinds—physical, emotional, social, and intellectual—in an increasingly more controlled and directed program. For example, the children’s participation in making or listening to music has increasingly been directed to specific needs.

Most of the children, before coming to the unit, had had extensive experience with record players. Some had had piano lessons and had learned to play well. However, the children’s musical experiences often had been associated with some unpleasantness—being pacified or isolated or having an ability exploited to the neglect of important needs.

As the children began to show more interest in music, the staff began to impose limits both on phonograph playing and the use of the pianos. The music teacher made advance schedules for playing records or tapes and selected those to be played, exposing the children to a wide variety of music. The children now listen intently during the music period and are often heard spontaneously humming tunes from the music that has been presented to them. They have completely accepted the restrictions placed on their handling of the musical equipment.

Learning to be aggressive with others

Limits and Demands

Putting controls on the use of music equipment

As specific children indicated they were ready to learn, the teacher scheduled formal music lessons and practice periods for them. However, some of the children who asked for music lessons were denied this privilege because of indications that they would then have given up all efforts to develop in other ways, or because they were interested not in learning but in competing with other children.

The music teacher, like the rest of the staff, has been heavily involved in all aspects of the children's development. He helps them make their beds, dress, and clean their rooms, and he goes on expeditions with them. The children have thus learned of his interest in their development as a whole and have acquired such confidence in him that they can accept teaching from him without having all of their negativism immediately aroused.

□ As the children have moved toward greater relatedness, an increasing complexity of performance has been demanded of them. The staff has shown its respect for their capacity to grow by insisting that those who are able to do so make their own beds, put away their own clothes, dress themselves, use table utensils, and assume such chores as setting the table, carrying their own dishes out to the kitchen, helping to serve food, and washing dishes. Such demands have not been made on all children simultaneously but only on specific children as they have shown readiness for assuming some responsibilities. Of course, there has been much resistance on the part of the children to such demands, but as they have carried out the tasks involved, their respect for themselves and for each other has appreciably increased. All the children are now actively participating to some degree in their own physical care, and a few are helping in the care of the more dependent ones.

Presently, about half of the original group are participating effectively in an educational curriculum including French, English, biology, history, braille, and music appreciation. Four are learning music theory in addition.

□ The most important ingredient in bringing about the changes noted has been the willingness of staff members to work as a team, to see beyond their own specific professional identities to the ultimate importance of building in each child a capacity to trust and to relate to other people. This has meant that everybody on the staff has had to take part in meeting the child's particular needs of the moment, whether this involved cleaning up a mess, bathing, dressing, or feeding. It was only through giving the children such elemental forms of patient attention that they could help the children learn to trust.

At first, the staff had no comprehension of this fact and could not function as an integrated team. There was little agreement as to how the children should be treated or about the nature of their problems. There was much confusion and intrastaff hostility, particularly in relation to problems of professional identity and theories of child care. Some staff members left, unable to adapt at all to the team approach. Others adapted sufficiently for the staff to be gradually welded into a smoothly coordinated therapeutic team, adjusting flexibly to the changing developmental levels of the children,

(Continued on page 126)

Showing Respect for the Child's Capacity to Grow

Contribution of the Staff

Adapting to the team approach

The Machine Conversion of Print to Speech: Two Papers

The following two articles deal with some of the linguistic aspects of devising an audible verbal output for a print-reading machine for the blind. The machine, which is now under development, will have a direct input of printed material—a textbook page, for example—and will produce an output of audible spoken sentences. The prototype machine is planned to be suitable for a central reading facility, such as a library, and is not designed for portability or individual ownership. It is, however, intended to be accessible—in the future—to individual users by means of a telephone line to the library.

□ The first article, "Problems in Machine Conversion of Print to Speech," describes experiments in compiling sentences from pre-recorded single spoken words. This is one type of possible output for a reading machine. The second article, "Rules for Word Stress Analysis for the Conversion of Print to Synthetic Speech," deals with software for another type of spoken output: speech made entirely by machine.

These articles were originally presented as lectures, accompanied by taped examples of the output of the reading machines. Interested readers can obtain copies of these tapes by writing to the *New Outlook for the Blind*, 15 West 16th Street, New York, N.Y. 10011. For technical reasons, there may be a few weeks' delay in filling these requests. There will be a charge of \$1.50 to cover cost of materials and mailing.

A key to the demonstration tapes appears at the end of the second article.

I. Problems in the Machine Conversion of Print to "Speech"

Applied research that is linguistic in character is required by a variety of enterprises and institutions these days. The research to be reported here has been made under contract to the Prosthetic and Sensory Aids Service of the Veterans Administration. The Veterans Administration has supported a number of research projects for the purpose of developing reading machines for blind persons; among them have been studies in electronic instrumentation, in

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Human and Machine-Made Speech

This paper was presented in March, 1966, at the 11th Annual National Conference on Linguistics in New York City. It was first published in the Spring 1966 issue of the Bulletin of Prosthetics Research.

psychology, in linguistics, and in cross-disciplinary fields. Each of these investigations has been concerned with the problem of converting the printed word to a tactile or auditory output. Part of the general research problem is optical in nature (because print must be recognized electronically), part deals with printed-symbol-to-sensory-symbol correspondence, and another part deals with human perception of units of sounds. A specific problem area is the analysis of the structure of spoken English, in view of the fact that the printed word is speech at one symbolic remove. Since blind people in general are obliged to approach all handwritten or printed or illustrated material either through braille or through the intercession of a human reader, a reading machine of some kind is an obvious need.

□ Leaving the consideration of cost aside, we can assume that the best reading machine will be one that converts printed text to an output that is as much like real speech as possible. In short, the machine should talk. This ideal machine should produce completely natural sentences, and to do this it should have the ability to vary intonations and pauses appropriately for specific texts. Ideally, it should be replete with variable voice quality, such as one shade and timing of voice for business letters and another one for romantic novels—or letters. But such a perfect machine would require a gigantic storage capacity, starting with tens of thousands of words. It would also require a remarkable program to manipulate its memory—to account for all manner of related nuances: grammatical, semantic, and intonational—in order to duplicate the associational memory and variable voice of the human being. Bear this ideal machine in mind—and the fact that it *is* an *ideal* machine.

Speech has been synthesized at Haskins Laboratories and elsewhere by rules applying to very small speech units, generally, of phonemic or syllabic size. A logical developmental step was to experiment with sentence production from work units that had been pre-recorded by a human speaker. A device called the interim word-reading machine was built for the Veterans Administration at Haskins to test the feasibility of generating sentences from single spoken words. Although a successor to that machine is already under way, many of the problems encountered in the course of outfitting the first interim device with a vocabulary, and other equipment, remain; so I will confine my remarks to the machine that has already served much of its purpose, but is soon to become ancestral.

The well-named *interim* word-reading machine at Haskins deals only with the word storage, retrieval, and output side of the reading machine problem, and omits the optical scanning operation (which is not our contractual obligation). My concern has been to get words recorded for the machine's storage, words that can be played out one after another, to (presumably) sound like sentences. The print-scanning function has been bypassed in the machine by simulation. The contents of a printed text are typed on a Flexowriter. The punched-tape resulting is simply a letter-to-digit conversion, and this is the form of information put into the machine. This is the input.

The Machine Should Talk

Sentences from pre-recorded words

□ Now about the vocabulary storage in the machine. Each separate spoken word that has been previously recorded is stored on magnetic tape. Stored along with each word on the tape is its digital spelling, or code. When the code for a given word is sensed on the *punched* tape by the machine, that word is searched out on the stored spoken vocabulary *magnetic* tape. The word is matched and played back if it is stored, and is recorded on another tape at the same time, where it is added to the rest of the words in the order commanded by the original text. (If the word is not stored, it must, unfortunately, be spelled out, letter by letter.) When the contents of the entire text have been accumulated, this new tape, consisting of spoken words, is played back to the listener. This is the output of the word-reading machine, and the entire process is, in fact, a conversion of print to sound.

The best feature of the interim reading machine output is its approximation of natural intonation, particularly in prepositional phrases. Since phrases of this type occur in texts far more often than any other syntactic structure, the overall acceptability is high.

The most unnatural aspect of the synthetic sentences is the presently unavoidable number of spelled words, occasioned by the restriction on the size of the stored vocabulary. When, in the midst of the verbal output, the listener suddenly hears a spelled word, he is somewhat bewildered and his comprehension of the sentence suffers. Spelling, since it is not typical of either conversation or of reading represents a total shift from the medium of speech to the medium of writing. Spelling is therefore destructive of the intelligibility of the whole text, despite the fact that it is necessary in a mere five percent of the words of a normal text. In addition, the unrecorded words which must be spelled in the output are the most infrequent (i.e., least expected, least guessable) words. And they are—on the average—exceptionally long, or peculiarly spelled, “difficult” words. Furthermore, each letter of a spelled word is a whole syllable, and thus the output word rate is severely slowed down by spelled words. Another handicap in spelled words is that the letters, as spoken, lack natural intonation and spacing, which a good spontaneous reader would provide if he were obliged to spell. Each of the 26 letters had to be recorded in only one intonational form, just as each of the 7,200 words was recorded in a single spoken version. Because there are even fewer restrictions on the place of letter occurrence in a word than there are on the place of word occurrence in a phrase or sentence, advance prescriptions for specific letter intonation were not attempted. The letters were merely recorded in groups by rhyming syllables, e.g., “A,J,K . . .,” at a sustained single level, in the hope that in sentences they would rapidly be perceived as letters, distinct from the words spoken as units in their immediate environment. A very brief pure tone signal also precedes and follows each spelled word in the program for the output—to signal the abrupt shift from whole words to letters on the auditory track—and this seems helpful.

As mentioned just above, the total recorded vocabulary consisted of 7,200 units: words, letters, numerals, a few suffixes, and reflexes for punctuation—both spoken and silent. The original words were spoken by John T. Wads-

Spelled words hard to understand

worth, in a long series of short recording sessions which were made over the course of a year.

After the words were recorded, the original tape was copied and edited. Then each word was separately mounted on a card. The test sentences were generated by playing the word cards in sequence through a machine (Language Master) that plays tapes from cards instead of reels, and then each word was recorded in direct sequence on another machine. The sentences *as such* are therefore synthetic, since they were never spoken as sentences by the original speaker. The output demonstrates by negative evidence that real speech is produced not word by word, but in continuous groups of words that are compatible in respect to tempo, loudness, and melody.

□ Every problem in applied research has constraints. For this machine, one—and only one—intonational version of each vocabulary word could be stored. This is a severe restriction, because in normal speech a given word may occur in many very, *very* different prosodic forms. Also, just one pronunciation was allowed per printed form, but homographs are a minor problem, compared to the fact that each word had to be stored in a single, frozen, stress and intonation form. It is clear that the one version recorded should be a highly probable spoken form for a highly probable type of occurrence in printed form.

We chose the vocabulary to be stored from the Dewey and the Thorndike and Lorge lists of the most frequently printed English words. There were no published data on probable spoken forms of the vocabulary words, although there were helpful reports in the literature on measurable correlates of stress and intonation by such investigators as Bolinger, Fry, and Denes.

Dr. F. S. Cooper of the Haskins Laboratory gave us a take-off push in the right general direction and some fine instruments to work with. Having made exploratory acoustic and perceptual texts of real and synthetic speech, we approached the machine's speech problem with the hypothesis that very frequent phrases and polysyllabic words were structurally similar in a way that might be useful to us. That is, the syllables of a polysyllabic word have a persistent stress relationship, even in varied intonational environments, and the syllables of the most frequent phrases also tended to be regular in their stress relationships. We gradually learned something about the prosodic components of stress in words or phrases—intensity, frequency, and duration—and decided to "program" our human speaker, if possible, to make the word recordings using prescribed stresses and intonations. Now the question was, what stress to prescribe for what. We turned to the study of the probability of word occurrence in printed and spoken form.

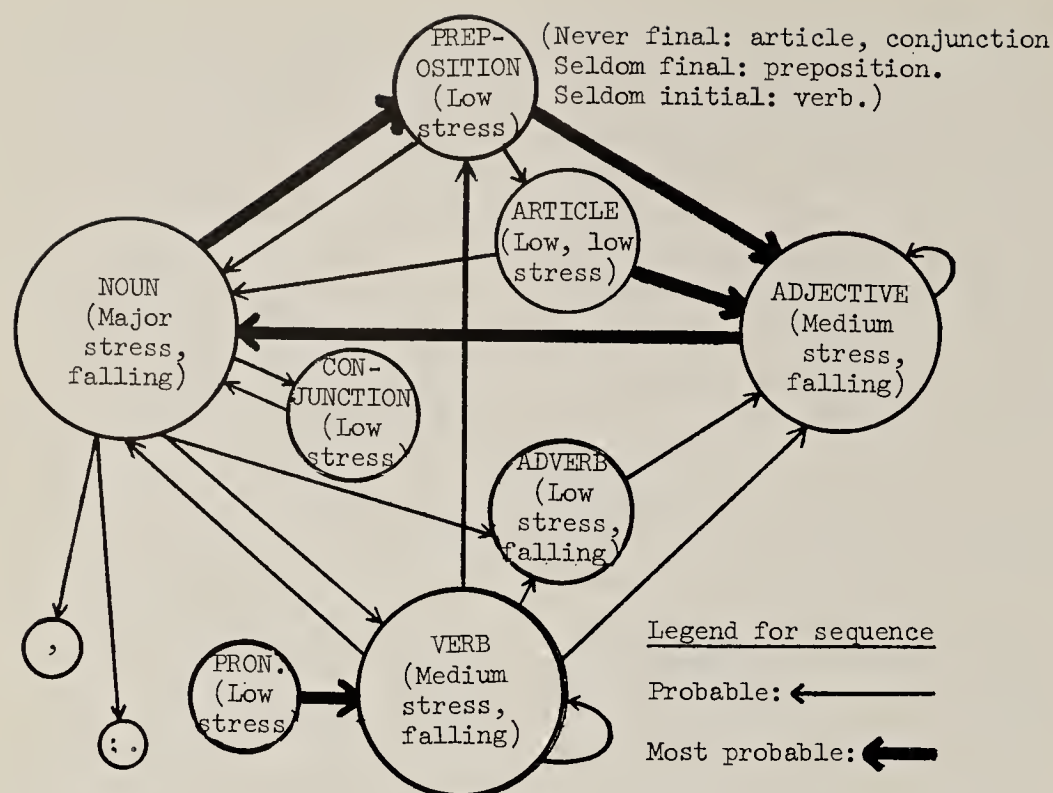
The most frequent type of phrase in English texts is the prepositional. Articles, prepositions, and a connective are by far the most common English words. Most highly frequent words are monosyllabic. The stress of the most frequent words is usually very low. Most phrases begin with a preposition, as mentioned before, and most phrases and sentences end with a noun. Nouns carry much information and are generally prominent in the speech chain—and so on with the other grammatical classes.

Words mounted on cards

Each Word Stored Only One Way

Stress relationships in polysyllabic words

FIGURE 1
Hypothesized Most Probable
Grammatical and Intonational
Sequences in English Texts



We also examined so-called "intonation" and were soon convinced that it is acoustically reflected in durational shifts as well as in frequency and intensity changes. Otherwise, we knew very little except that syllables lengthen immediately before a pause, that pitch and intensity peaks usually start high and tend to decline toward the end of an utterance, and that pauses for punctuation are variable in length and have structural significance (Some of these aspects of intonation almost certainly have a physiological base).

□ Facts or observations of this sort, along with counts of form class sequence taken from texts in daily papers, books, and periodicals, indicated that the spoken lexicon should be recorded on the basis of a word's grammatical function. Grammatical function is correlated to some extent with word stress category and a trained speaker could, with effort, produce words at a prescribed relative pitch, length, and loudness. An underlying assumption was that the stress prescriptions themselves would be valid, and that they would be consistently reproducible by a human speaker on demand, and over a large span of time.

Figure 1 is a diagram of probable grammatical sequences in printed texts. The size of each circle indicates the projected relative prominence of a word as a given part of speech, used in writing the stress prescriptions. Although nearly all the form classes in English can be—and often are—preceded or followed by almost any of the form classes, the arrowed lines shown between any *two* classes stand for statistical likelihood of sequence.

Words Recorded by Grammatical Function

In order to use the probability rationale for the manner in which word classes were to be spoken, we had to classify each of the 7,200 words as a member of a particular grammatical class, before it could be suitably recorded. This was a stumbling block.

□ Table 1 suggests the problem by showing a breakdown of the thousand most frequent words by potential membership in a grammatical class. About half of the words can function in more than one role, and that role can be determined only by context. We therefore classified the multifunctional words by their most *probable* function, through educated guesswork and by intuition as native speakers. Impossible-to-classify words were put into the most neutral stress group, along with main verbs, whose stress in a sentence seems to be unpredictable. The prescriptions were written, and the recordings were made.

The recording speaker followed the directions explicitly about 99 percent of the time, and the texts used have actually been a random test of the stored 7,200 word vocabulary. The questions to think about when listening to the tapes are: To what degree is normal intonation approximated in these tapes, in what kinds of cases is it least normal, and what *is* normal intonation?

Words Listed by Probable Function

A) Words that have a <i>single</i> function,		
Nouns	196	
Verbs	140	
Adjectives	81	
Adverbs	48	
Prepositions	17	
Connectives	8	
Other	1	
	491	
B) Words that have <i>two</i> potential functions,		
Noun or Verb	215	e.g., "being"
Noun or Adjective	120	"three"
Verb or Adjective	50	"open"
Adjective or Adverb	26	"better"
Adverb or Preposition	18	"to"
Adverb or Connective	8	"since"
Connective or Other	6	"though"
Adverb or Other	4	"really"
	447	
C) Words that have <i>three</i> potential functions		
Noun, Verb, Adjective	46	e.g., "present"
Noun, Adjective, Adverb	7	"first"
Noun, Adjective, Connective	3	"either"
Verb, Adjective, Preposition	3	"near"
	59	
D) Words that have <i>four</i> potential functions,		
Noun, Verb, Adjective, Adverb	6	"last, left, set, front, further back"

TABLE 1
Grammatical Functions of the
Most Frequent Words

□ Studies are now underway to formulate a program that will circumvent the spelling problem by converting printed words directly to audible, recognizable syllables. It is well known, however, that there are few one-to-one spelling-to-sound conversions in most of the letters and syllables of English (especially because of stress problems). Thus, this experimental method presents problems of its own.

The second generation word-reading machine now being developed, sired by the interim machine and a computer facility, will store words as control signals rather than as waveforms as at present. In that machine, intonation can be manipulated and programmed by synthesis, and certain of the present output irregularities in stress, timing, and inflection, will be reduced—if not completely eliminated. The word rate can be speeded up as the phrasing is improved, and this is a requisite for blind listeners. At the same time our understanding of real speech phenomena will increase.

II. Rules for Word Stress Analysis for Conversion of Print to Synthetic Speech

Learning to read often takes humans several years. In contrast, a machine that reads print aloud must be an accomplished reader right away, although it has had no language, spelling, or writing practice, or general skill development in contextual recognition. The human reader listens, associates, and learns to talk long before he learns to read, and learning to read is a gradual thing, just as learning to speak was, before it. The human being who is being taught to read must learn the following subsidiary skills:

1. To recognize printed letters, both upper and lower case; and to be able to spell, pronounce, (and have connotations for) English words, by knowing both their regularities and irregularities in specific instances.
2. To apply word stress correctly.
3. To supply normal intonation to printed sentences, in which the printed guides to spoken inflection are largely cryptic, or non-existent—if meaning is considered apart from the printed signal. The chief cues to intonation in printed texts are punctuation and word order. The other signal, semantic content, is provided by the human reader's personal experience in speaking and hearing English. (The human consults his auditory memory to provide proper intonation to a text.) A huge associational memory for spoken language is a very special advantage that all non-deaf humans possess, unlike the comparatively puny memory (storage) that can be built into computers at the present time.

This paper was presented at the 74th Meeting of the Acoustical Society of America, held in Miami Beach in November, 1967.

□ The human reader is expected to comprehend what he reads, of course; but reading machines do not understand a syllable of what they must convert to sound. A computer program is required to provide the reading machine with quick strategies to make decisions about word, phrase and sentence pronunciation. Therefore the program must contain procedures for reading in a meaningful-sounding way; i.e., it must be based on the linguistic realities of spoken English.

To begin with, the machine must match or identify the printed letters. (This is done by optical character recognition—a step that will be omitted here because it has not been a part of our contractual obligation). After letter recognition has been achieved (or simulated, as in our model) the machine may use sequential reading procedures, each roughly corresponding to the mastery of a human step in learning to read. The reading steps used by the machine are stored data and operations pertaining to the following subjects:

1. The most probable pronunciation for each letter and for various frequent letter sequences;
2. The most probable stress of syllables as words, parts of words, or parts of phrases;
3. The most probable intonation for sequences of words which are terminated by specific punctuation symbols (and perhaps, as framed by particular word classes).

A reading machine that produces a synthetically-made spoken output must, in addition, speak in a voice that is not un-human, so that the speech will be pleasant to listen to, as well as normally intelligible.

As has been said earlier, the machine's speech must also *sound* as if the machine understands what it is giving voice to, although its performance is entirely automatic and without meaningful reference to either content or context. The (blind) listener must be enabled to derive the full sense of utterances from the machine's delivery, even though the speech is synthetic and the machine's "interpretation" is, literally, literal.

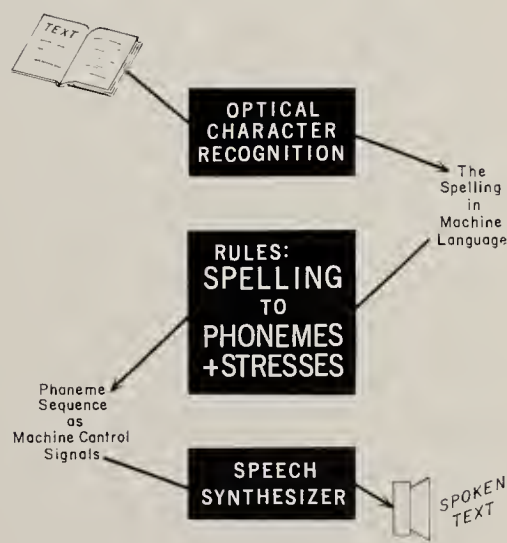
The task of reading by machine is comparable to the human task of reading nonsense words aloud. The machine's word pronunciation must be based on the spelling, and its sentence intonation based entirely on punctuation. Nevertheless, the machine is intended to produce an intelligible spoken text for human listeners—and for blind listeners in particular.

Figure 1 shows the reading process as it is to be done by one type of machine (the one that will concern us here). The three black boxes represent its main operations. An optical character recognizer transforms print to machine language; then (as seen in the center of the diagram) the spelled word becomes the phonetic word, *by rule*. (The rules for word stress analysis apply to this step.) Finally, the phonetic symbols—called "phonemes" in Figure 1—become commands for synthesizing speech. This last step involves speech synthesis by rule, which is a rapidly advancing art and science as has been demonstrated by Drs. Ignatius Mattingly and Mark Haggard, and others. Mattingly and Haggard have devised programs for the synthesis of American English and British English, using the Haskins Lab-

The Reading Machine Doesn't Understand

The voice must sound human

FIGURE 1
Print Reading by Machine



oratories computer and synthesizer. The form of computer input they have used is a *man-made* phonetic transcription.

We now want to program the machine to make its own phonetic judgments of the textual input, without human help. To do this, we must write clear-cut rules for the conversion of printed letters to speech-like phones (sounds). We are not alone in this attempt, but there are problems enough in English spelling to go around.

As a start, we set up a test of nonsense words for humans to read, so that we might observe their approach to a reading problem which would be equally difficult for man and machine. The general purpose was to determine the *kinds* of pronunciation cues—and the *order of cues*—employed by humans when reading meaningless syllables. The nonsense items resembled English words: normal letter sequences were used, and many of the words contained familiar affixes. Figure 2 shows samples of the words used.

The specific purpose of the test was to see how people stress unknown words—and in particular, to pinpoint the role of affixes in the assignment of word stress. (Stress, sometimes called “prominence,” is a speech property that can be perceived in any spoken syllables. There are numerous degrees of stress, and all of them are relative. In describing speech, linguists recognize at least three—more often four—degrees of stress. “Word stress” refers to the gross rhythmic contour that accompanies the fixed syllable sequence of any polysyllabic word. Acoustically, stress depends on several interacting parameters: duration, intensity, fundamental frequency, and even spectral distribution. Thus a strongly-stressed syllable, using all these cues, will be unusually high (or unusually low) in voice pitch, or longer and louder than its neighbors. In addition, it may be set off by silence from its neighbors.

Returning briefly to the nonsense-word test: A total of 150 words, including those shown in Figure 2, were presented in four test sessions to each of 12 adult readers. The assumptions to be tested were:

1. Some affixes are highly stable in stress properties, and provide the stress framework for all (or nearly all) words to which they are attached. Figure 3 shows three stable prefixes at the lower left.
2. If *no* affix is present to force a different pattern, stress is strong on the first syllable of a two- or three-syllable word.

A nonsense-word test

TEST I	TEST II	TEST III	TEST IV
snacial	snacially	snacene	snaciocrity
erchon	erchone	chonation	erchonibund
ciet	cieter	preciety	precietographic
busion	busioned	imbusion	busiopathy
adgiculy	adgicule	adgiculation	adgiculiogonomy

FIGURE 2
Sample Nonsense Words in Tests

Suffix Examples

(Predict stress from suffix)

INERTIA
DEMONIC
DIGNIFIED

Prefix Examples

(Predict stress from prefix)

ALONE
BESIDE
DEPENDING

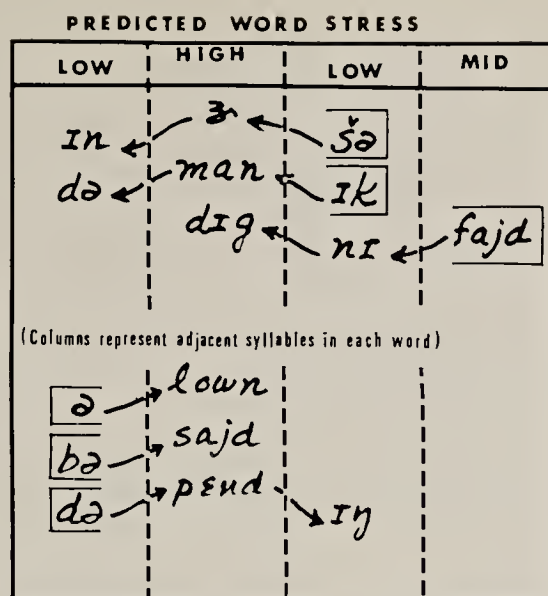


FIGURE 3

"Stable" Affixes and Stress Prediction

3. Successive syllables in a word tend to be pronounced with alternating high and low stresses—unless the root, or the affix region, is compound.

4. Stress alternates backward from a stable suffix (look at Figure 3 again), or forward from a stable prefix. When both a suffix and a prefix are present and stable, the suffix determines the word stress.

5. The stress pattern attributed to a word *limits* the phonetic quality given to its syllables, the *vowels* being most noticeably affected; e.g., "invalid" with inverted alternating stress becomes "invalid."

□ All of these assumptions were substantially confirmed. The assumptions, which now serve as working rules, are based on the enormous frequency of stable affixes in actual texts, and on the tendency of stress to alternate in the syllables of a word. (High—Low—Mid-High—Low is the general pattern of alternation.) Further, the habitual stress level of a stable affix allows us to extrapolate the stress of the rest of the word.

If we combine stress probability with the observation that vowel color reflects the level of syllable stress quite dependably, we have a foothold on the concept of print-to-speech conversion. Figure 4 shows the single vowel letters, along with three phonetic states probable for each one, according to stress level (consonantal quality is also affected by stress, but not as profoundly as vocalic quality).

But in order to assign stress, syllabification must first be done. Figure 5 outlines the method used.

At present we assume that character recognition has already taken place as the first step in the machine's reading process, so we start in by simulating the reading machine's functions in stress and phonetic assignment. This involves rules for generating the phonetic string that serves as the input to the computer and synthesizer.

In the simulation process, we consult a list (as it might exist in computer memory) which contains the stress and phonetic information for about

Assumptions Confirmed

FIGURE 4

Sound Correspondences for Single Vowels, by Syllable Stress Type

Letter	Stress & Sound	Letter	Stress & Sound
	HIGH MID LOW		HIGH MID LOW
A	æ æ ə*	A+cons+E	ej ej I
E	ɛ ɛ ə	E " "	i i I
I	ɪ ɪ I	I " "	aj aj I
O	ɑ ɑ ə	O " "	ow ow ə
U	ʌ ʌ jə	U " "	ju ju jə
INIT.: ju			
* "ALABAMA" > æ lə lɛæ mə			
MID LOW HIGH LOW			

A syllable boundary is made between two vowels:

V|V*

as in

|c v|c v|v c
|v a|c u|u m

Or, between a vowel and a single consonant:

V|C

" "

|c v|c v|v c
|v a|c u|u m

Or, between two consonants:

C|C

" "

|v c|c v c
|u n|d e r

Or, after the first of three consonants:

C|CC

" "

|v c|c c v
|e n|t r y

Or, after the second of four consonants:

CC|CC

" "

|c c v c c|c c v c c
|g r a n d|s t a n d

1st syllable boundary.

No syllable boundary between initial/final consonants.

*(Most vowel sequences are not divisible, by rule.)

FIGURE 5
Syllabification Rules

100 affixes (that match spelled-letter sequences). We also consult a list of (i.e. store) about 500 common words—because they differ, in spelling or stress pattern, from the vocabulary at large. For example, articles and short prepositions are stored with Low Stress assigned to them (since they are customarily unstressed in speech) and words, such as "talk" and "child," which are not pronounced as the mere spelling suggests, are stored. Words of high-usage frequency such as "politics"—which has an unusual stress pattern in view of its suffix, are also stored. (Usually the ic(s) suffix denotes full stress on the preceding syllable—e.g., "platonic." In "politics," the syllable preceding the suffix is unstressed.)

□ Another part of the storage consists of phonetic specification for the most probable type of sound corresponding to each alphabetic letter (and each common short letter sequence, e.g., "ea," "sh") for High, Mid-High, and Low Stress states.

Figure 6 shows the steps followed in converting print to phonetics, here elaborated in the text:

1. Test entire word for match in storage.
2. If the word is not matched, search for a suffix match.
3. If the suffix is matched in the storage, syllabify the word and assign stress to the syllables of the word on the basis of the suffix instructions. (For example, if the suffix is stored as Low in stress and signals High Stress in the preceding syllable as the suffix "-ion" does, the preceding syllable is assigned High Stress, and the syllable preceding it receives Low Stress, etc.)
4. If the suffix is not matched, syllabify the word and search for a prefix that matches the first syllable.

Stress Can Be High, Mid-High or Low

5. If the prefix is matched in storage, assign stress on the basis of the prefix instructions.
6. If there is no prefix match, assign stress on the basis of the number of the syllables in the word. (Monosyllables receive Mid-High Stress, disyllables receive High—Low, trisyllables receive High—Low—Mid-High.)
7. Convert the letters of the word to phonetic specifications appropriate to the stress status of the syllables in which they appear.

In Figure 7 are shown the stress and phonetic symbols assigned by rule to a sample printed sentence. (At this point in the oral presentation of this paper, a tape recording of several sentences was played to let the audience hear how the actual print-to-synthetic speech conversion sounded after the rules had been processed through a computer and speech-synthesizer hook-up, using Mattingly's synthesis algorithm for American English, which included a formula for supplying intonation to the utterances.)

If the reader is familiar with phonetic symbols, Figure 7 will be illustrative. If not, a word of explanation of the figure and the tape it represents is in order:

Listeners who heard the tape demonstration found that the sounds produced for the symbols (in Figure 7) were close to what humans say aloud for the printed words in the text, except that the word "deserves" was pronounced as "deSAIRVZ" because there is no simple rule for midword conversion of the letter s to the sound z, or for "er" conversions to the proper sound for this particular word (rules for vowel + r sequences in stressed syllables present many problems). Listeners also noted that the intonation was a little extreme for natural American speech, and that the voice quality of the machine did have a mildly mechanical air—although the total sentence was fully intelligible.

Rules for word stress analysis and assignment, resembling those presented in this report (or augmented by syntactic information), have implications for teaching humans to read, in addition to their clear usefulness in programming machines to read. At present the rules produce some results that should never be produced by good human readers, but are often produced by poor human readers. The occasional negative results in phonetics, stress assignment and intonation can be surprisingly instructive to both the linguist and the teacher of reading.

Overall, the relative simplicity and actual utility of rules for correctly stressing the majority of English words has been demonstrated. In controlled experiments (such as the one cited) a simulated storage of stress rules has been applied to Mattingly's synthesis program, and a speech synthesizer has produced audible and intelligible sentences from (simulated) inputs of printed texts.

☐ This key is presented for readers who wish to order copies of the demonstration tapes, and for subscribers to the recorded edition of the *Outlook*.

The first four sections of the tape illustrate the technique discussed in the first article—pre-recorded single spoken words and letters, using the human

FIGURE 6
Stress in Converting Print to
Phonetics

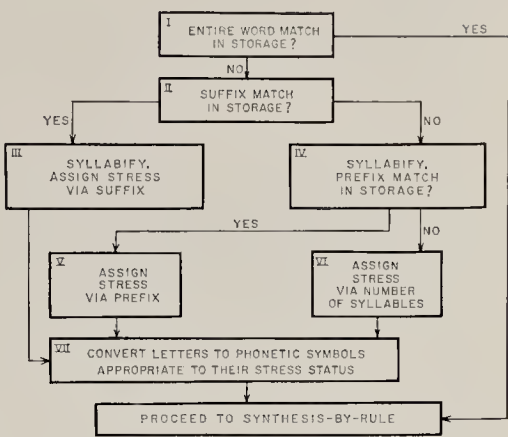


FIGURE 7
Word Stress by Rule

ðis	wɪn	də	servz
MID	MID	LOW	HIGH
			CVCVCVCVC
-- THIS ONE DESERVES			

jur	ve	ri	spe	ʃəl	ə	tən	ʃən
LOW	HIGH	LOW	HIGH	← LOW	LOW	← HIGH	← LOW
	CVCV	CCV	CVC	CVC	VCCVC	CVC	CVC
YOUR VERY SPECIAL ATTENTION							

Stored word	Stored Affix
.....	

A Key to the Demonstration Tapes

voice. The fifth section illustrates the technique discussed in the second article—speech sounds generated completely by machine.

Section 1: "This is speech. . . ." Pre-recorded single words.

Section 2: "Every city has its. . . ." Pre-recorded single words, with letters used to spell words not stored in the machine. Played 20 percent faster than in section 1.

Section 3: "The north wind. . . ." Pre-recorded single words, no words spelled out. Played 20 percent faster than in section 1.

Section 4: A personal letter. Output includes punctuation marks and numbers. Same speed as in section 1.

Section 5: Speech made entirely by machine, no human-voice input. Near the end of the section, the machine pronounces the French phrase, "*c'est tout fini*."

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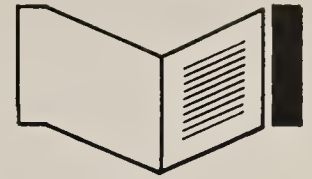
Patterns of Change in Disturbed Blind Children in Residential Treatment

Continued from page 113

picking up and acting on cues from each other, and being mutually supportive in trying times. There have, of course, been some weak links, for to achieve an ideal coordination in working with such children is a difficult task.

We have found, however, that when a central core of professional persons retains responsibility for coordination and planning in relation to each child, the children can learn to adapt to those staff members who find themselves temporarily or permanently at odds with the team's generally accepting and encouraging approach. We have also found that the staff members who can be noncoercive and at the same time can encourage children to have new experiences are those who best avoid feelings of depression and inadequacy in themselves and are those most trusted by the children.

In the near future, the unit is to become the Fairmount Institute of the Division of Child Psychiatry of the State University of New York, Upstate Medical Center, Syracuse. It will be greatly expanded and will include sighted as well as blind children in both residential and day treatment.



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Characteristics of Perceptual Activity in the Blind, by M. I. Zemtsova. Chapter 9 in *A Handbook of Contemporary Soviet Psychology*, edited by Michael Cole and Irving Maltzman. Basic Books, Inc. (404 Park Avenue South, New York, New York 10016), 1969, p. 302-325. \$25. A review of Russian research in perceptual activity, by the director of the Laboratory of the Psychology of Blind Children at the Institute of Defectology in Moscow.

Blind People in Sweden: A Socio-medical Study, by Eva Lindstedt. *Acta Ophthalmologica* (Munksgaard, 47 Prags Blvd., Copenhagen S, Denmark), Vol. 45, 1968, p. 1146-1158. Dr. Lindstedt, an eye specialist, was asked by De Blindas Förening (The Association of the Blind) to make a social, medical examination of the blind people in Sweden receiving national compensation. Her report is based on records concerning 3,557 persons who were over the age of 16 as of January 1, 1964, and who had lost their locomotor vision before the age of 60.

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nal for the Education of the Blind (1839 Frankfort Avenue, Louisville, Kentucky 40206), Vol. 18, No. 4, December 1968, p. 99-107. Mr. Winn is the director of the educational project referred to in the title.

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A Verbal Adaptation of the Draw-A-Person Techniques for Use with Blind Subjects: A Preliminary Report, by Joan B. Chase and Irene N. Rapaport. Report on the administration of the test to 75 blind subjects. Further validation research is planned.

Force Perception by Blind and Blind-folded Subjects, by T. M. Nelson and R. R. Haney. *The International Journal for the Education of the Blind* (see address above), Vol. 18, No. 4, December 1968, p. 116-119. Professor Nelson is head of the Department of Psychology at the University of Alberta in Edmonton, Canada. Mr. Haney is a member of his staff.

The Beltone/Ultra Sonic Aid, by Fred L. Gissoni. *The Long Cane News* (Peripatology Program, Boston College, Chesnut Hill, Massachusetts 02167: Institute of Blind Rehabilitation, Western Michigan University, Kalamazoo, Michigan 49001), Vol. 2, No. 6 [1968] p. 19-21. Mr. Gissoni summarizes a speech delivered to the

American Association of Workers for the Blind at its annual convention in Toronto. The Ultra Sonic Aid is the invention of Dr. Leslie Kay of Christchurch, New Zealand.

A Program of Orientation and Mobility for the Aged Blind in the Community, by James E. Hubbard. *The Long Cane News* (see address above), Vol. 2, No. 6 [1968], p. 16-19. Mr. Hubbard, supervisor of Mobility and Homebound Instruction in the Washington, D. C. Department of Vocational Rehabilitation, delivered this paper to the AAWB Mobility Interest Group, July 8, 1968.

Orientation and Mobility Problems for the Blind Mentally Retarded, by Paul McDade. *The Long Cane News* (see address above), Vol. 2, No. 6 [1968], p. 12-15. Summary of a talk delivered to Interest Group IX of the AAWB on July 9, 1968. Mr. McDade, a graduate of the Boston College Peripatology Program, is director of a three-year research and demonstration project at the Walter E. Fernald State School in Massachusetts.

A Special Kind of Teacher. *Tennessee Public Welfare Record* (Tennessee Department of Public Welfare, 410 State Office Building, Nashville, Tennessee), Vol. 31, No. 6, December 1968, p. 126-127. The story of Chester L. Lewis, blind since early boyhood, who received rehabilitation services through the Tennessee Department of Public Welfare. He is now a teacher and wrestling coach at the Indiana School for the Blind and is Tennessee's nominee in the national competition for Rehabilitation of the Year. —M. M. R.

■ Two donors in Milwaukee have given a total of \$600,000 to the Marquette School of Medicine for construction of an eye institute to be part of the proposed Southeastern Wisconsin Medical Center.

An anonymous donor gave \$200,000 in honor of the late Clemens C. Messmer, a Milwaukee eye physician. The remaining \$400,000 came from the trustees of the Faye McBeath Foundation.

■ The American Association of Workers for the Blind has decided to discontinue regular publication of its Mobility Interest Group IX newsletter.

The action was taken because articles on mobility were not being contributed

with enough frequency to warrant continued publication. The AAWB has requested that articles, reports, and items of interest to Interest Group members be forwarded either to the Graduate Mobility Programs or the Interest Group representatives.

Mobility Interest Group IX will publish at least one complete edition a year, which, it is hoped, will serve as a proceedings of its workshops and sessions.

Coming Events

April 6-12 Council for Exceptional Children, Annual Convention, Denver, Colo.

May 11-14 National Braille Association, National Conference, Dallas, Texas.

May 25-28 National Conference on Social Welfare, New York, N.Y.

June 22-28 American Library Association, Annual Convention, Atlantic City, N.J.

June 30-July 5 National Education Association, Annual Convention, Philadelphia, Pa.

July 20-23 American Association of Workers for the Blind, Annual Convention, Chicago, Ill.

August 24-29 International Congress of Gerontology, Washington, D.C.

August 6-9 Blinded Veterans Association, Annual Convention, Philadelphia, Pa.

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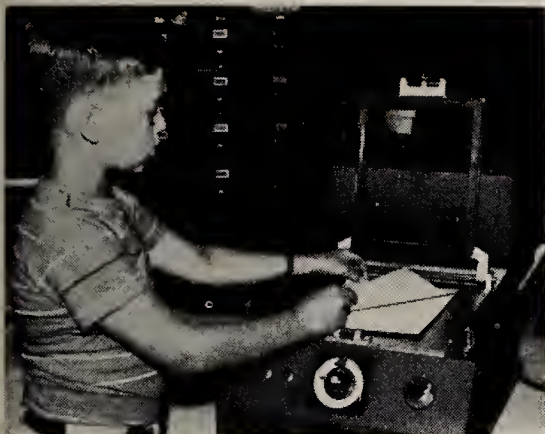
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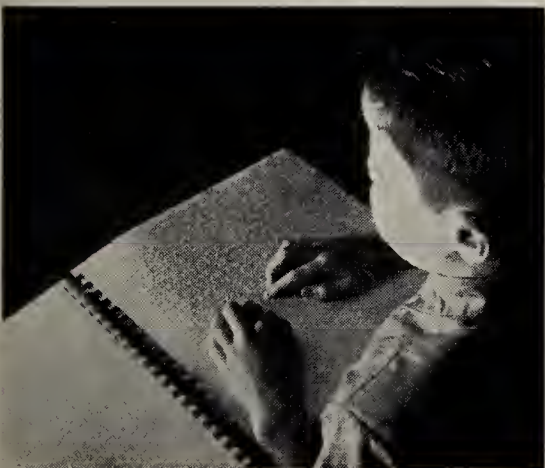


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THE NEW Outlook FOR THE BLIND

Successful and Unsuccessful Rehabilitation of the

Legally Blind

Lyle Knowles

Research on a Comprehensive Follow-up Program for

Mobility Service

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Sharing Your Knowledge of Folk Guitar with a Blind Friend

Carol Ann Peterson

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Successful and Unsuccessful Rehabilitation of the Legally Blind

The area of exceptionalities in human beings may be considered as being to a large extent kaleidoscopic in nature. Workers in this area find themselves faced with exceedingly complex systems of human interactions and intra-actions, systems whose complexities are compounded by impairments involving the physical, socio-emotional, and intellectual aspects of the individual, and more often than not, a combination of such attributes.

Efforts with exceptional people usually include such activities as education, training, personal adjustment, social adjustment, and vocational rehabilitation.

This study was directed toward the broad area of vocational rehabilitation and, more specifically, toward the vocational rehabilitation of legally blind persons.

The theory behind the study was that certain individually oriented characteristics pertaining to blind rehabilitants might be related to their success or lack of success in rehabilitation.

The attributes selected for inclusion in the current study may well reflect much of the typical information known to the vocational rehabilitation counsellor after completion of the screening process. These characteristics were chosen after careful review of previous research studies and exploratory interviews with a number of professional workers in the field.

The purpose of this study was to compare, in terms of particular personal characteristics, groups of blind persons who had succeeded in vocational rehabilitation with groups of blind persons who had not succeeded.

The major research question can be stated thus: What relationship occurs between successful and unsuccessful vocational rehabilitation in groups of legally blind individuals and selected personal characteristics?

□ The initial problem involved an analysis of the personal characteristics of some legally blind individuals in the Los Angeles County, California area who had been accepted for vocational planning and preparation services under the State of California Rehabilitation system, Division for the Blind. These rehabilitants had subsequently self-selected themselves into successful and unsuccessful rehabilitation categories or groups.

Since much of the previous formal research in the area might be considered largely clinical in approach, it was decided that a second facet of interest should be considered. In addition to exploring the research question established above, an interpretation of the data was considered relevant to determine whether or not the results of a fairly rigorously controlled scientific study, utilizing only quantified data, would seem to differ greatly from observations and conclusions of studies which were more clinically oriented.

LYLE KNOWLES

Mr. Knowles is an assistant professor in the School of Public Administration of the University of Southern California.

An Analysis of Personal Characteristics

A further area of the problem was the use of a multivariate statistical model. To the best of the researcher's knowledge, this statistical approach is unique in the area of the research on the visually impaired. Most previous research has involved univariate techniques, in which only one variable or characteristic is examined in relation to all other characteristics simultaneously. This orientation may reflect a more realistic approach to exploring personal phenomena, since it is hardly possible to consider or isolate one facet of the human makeup at a time in the empirical world. That is, the rehabilitation counsellor must deal with each client as a whole person, possessing innumerable characteristics that are continuously interrelating.

The formal research hypothesis states that there is a significant difference between the multivariate distributions of successful and unsuccessful groups of legally blind individuals for the variables included in this study. In other words, it is proposed that there is a difference or separation between these two groups.

□ This study examined the research question and resultant hypothesis by exploring the following independent variables.

The Variables

Cognitive ability or intelligence
Age at time of rehabilitation
Age blindness occurred
Total years of blindness
Degree of blindness
Vocational classification before rehabilitation
Vocational classification after rehabilitation
Total years reported worked before rehabilitation
Years of education
Level of orientation and mobility
Mode of travel
Length of time in the rehabilitation program
Number of dependents in the family

The dependent or criterion variable is vocational rehabilitation.

It was assumed that variables such as the motivation and the basic social-emotional adjustment were, for the most part, eliminated through the screening process prior to acceptance into the rehabilitation plan phase.

Rehabilitation agencies in California maintain several sets of client files that include those rehabilitants who: (1) are currently in process or training, (2) have successfully rehabilitated, and (3) have unsuccessfully rehabilitated. Since the current study is *ex post facto* in orientation, files in the latter two categories were utilized as a source of basic data.

Information was collected from 245 successful case files and 210 unsuccessful files in an effort to "look backward" and determine which relationships and differences in the two groups led up to the present situation. It was estimated that the 461 cases studied represented 23 percent of the almost 1,100 successful cases recorded in the State of California for the 5 years surveyed, and 30 percent of the unsuccessful cases.

Gathering the information

□ The following section summarizes how the data were organized and made operational.

Data pertaining to chronological and age phenomena were recorded in tenths of years.

Cognitive ability was recorded in terms of IQ scores. In most cases this involved the verbal scale score of the WAIS.

Degree of blindness was operationally defined as reflected in Table 1.

<i>Degree of Blindness</i>	<i>Scale Value</i>
Frequent use of ink print	5
Some reading of ink print	4
Travel vision only	3
Light perception or projection	2
Totally blind	1

TABLE 1
Degree of Blindness

Level of occupational employment was scaled according to the *Dictionary of Occupational Titles*, published by the U. S. Department of Labor in 1965, utilizing a two digit number representing scale position on the occupational continuum that progresses from untrained workers at the 90 to 98 level through professional people at the 00 to 09 level.

Data on orientation and mobility were recorded as shown in Table 2.

<i>Orientation and Mobility Rating</i>	<i>Scale Value</i>
Excellent	5
Very good	4
Good	3
Fair	2
Poor	1

TABLE 2
Orientation and Mobility

The mode-of-travel variable as seen in Table 3 may generally be considered a rough indication of an independence-dependence continuum.

<i>Mode of Travel</i>	<i>Scale Value</i>
Travel vision	6
Travel vision and cane	5
Cane	4
Cane and guide dog	3
Guide dog	2
Sighted companion	1

TABLE 3
Mode of Travel

After the data had been recorded, coded, and punched into data processing cards, they were processed on a large scale electronic data processing system at the University of Southern California. A thorough analysis of the research question was accomplished through the use of three levels of statistical tests: Non-parametric, parametric univariate, and parametric multivariate.

□ Non-parametric analysis: As a result of a chi-square analysis on all variables, three reflected a significant difference beyond the .01 level. The data indicated that successful clients possessed a significantly higher level of mobility and orientation, a higher level of occupational classification before rehabilitation, and a more realistic pattern of vocational positions after rehabilitation. The distribution of unsuccessful cases for this latter variable was skewed because many of these clients aspired to the professional levels without having had the necessary background, education, and training. Also, almost 20 percent were still unskilled at the time of case closure.

Total years of blindness was significant at the .05 level. Of the successful group, 27.3 percent had been blind less than four years, with 19.2 percent between five and nine years. For the unsuccessful group, 31.0 percent had been blind less than four years, and 14.4 percent between five and nine years.

None of the other variables achieved statistical significance at the non-parametric level of analysis.

Parametric univariate analysis: A one-way analysis of variance test was used to examine the data within a parametric univariate framework. Table 4 shows the means and standard deviations for the two groups.

Presentation of the Data

Variable	Successful		Unsuccessful		Fisher's F Ratio	p
	Mean	Sigma	Mean	Sigma		
ORT & MOB	4.5	.8	4.2	1.2	10.9	<.01
YRS EDUC	11.9	3.0	11.1	3.3	6.3	<.05
IQ	104.9	11.9	102.3	12.5	5.4	<.05
VOC CL BEF	52.3	32.3	58.3	29.8	4.3	<.05
MOD OF TVL	5.2	1.4	4.9	1.7	4.0	<.05
VOC CL AFT	41.2	28.3	46.1	34.8	2.8	
YRS OF BL	16.9	14.4	15.3	12.7	1.7	
YRS IN RHB	1.6	1.5	1.5	1.4	1.0	
AGE OF BL	24.5	22.3	26.2	21.0	.7	
NUM OF DEP	1.1	1.5	1.2	1.6	.5	
DGR OF BL	3.6	1.3	3.6	1.3	.3	
YRS WK BEF	12.1	10.8	12.6	11.3	.2	
AGE AT RHB	41.5	14.3	41.5	13.7	.002	
Degrees of freedom = 1 and 459						

TABLE 4

Analysis of Variance Summary

Orientation and mobility was found to be significantly higher in the successful group at the .01 level of significance. However, the assumption of homoscedasticity, or common variance, was violated in this case, which may have influenced the statistical test.

At the 5 percent level of significance, the members of the successful group had, on the average, significantly more years of education and a slightly higher IQ. This group also contained a higher number of people who possessed travel vision. The latter variable was found to violate the assumption of common variance. Vocational classification before rehabilitation showed the successful group with significantly higher levels of job experience.

Education, IQ and travel vision

The preceding section has presented findings in terms of looking at each variable separately, without considering its interaction with any other variable.

Parametric multivariate analysis: In an effort to explore the research question of different groups within the context of total interaction and interrelationships of all variables, a discriminant function analysis model was selected. This technique is relatively new in terms of use in the behavioral sciences. The analysis incorporates a number of comparatively complex computations involving the manipulations of matrix algebra. In the present study, a 13 dimensional matrix was generated, proceeding to a total correlation matrix, from which a variance-covariance matrix was then constructed. After each variable had been correlated and covaried with each other variable, a test of significance of different groups took place using a Fisher's F ratio.

Table 5 reflects a Wilk's Lambda of .95024 which was tested with a Fisher's F and found to be significant at the 5 percent level. A difference between the multivariate distributions of these two groups as large as was found would occur by chance alone in less than five cases out of 100.

<i>Variable</i>	<i>Scaled Vectors</i>	<i>Beta Ratio</i>
AGE OF BL	90.79	1.00
YRS OF BL	62.87	.69
AGE AT RHB	-57.50	-.63
ORT & MOB	16.81	.19
DGR OF BL	-11.62	-.13
VOC CL BEF	-11.17	-.12
MOD OF TVL	8.09	.09
NUM OF DEP	-4.92	-.05
IQ	3.51	.04
YRS WK BEF	-3.07	-.03
YRS EDUC	2.32	.03
YRS IN RHB	2.22	.02
VOC CL AFT	-.08	-.01

Wilk's Lambda = .95024

For 13 and 447 Degrees of Freedom Fisher's F equals 1.8007 with
p < .05

TABLE 5

Discriminant Function
Analysis Summary

The variables are listed in Table 5 according to their relative contribution to the significant separation of successful and unsuccessful groups of blind rehabilitants. The major contributor among these variables is age-blindness-occurred, followed by years-of-blindness, age-at-time-of-rehabilitation, and orientation and mobility.

It is interesting to compare the profile of characteristics generated from the multivariate model with the significant variables obtained from the univariate techniques. This comparison will be discussed in the latter sections of this study.

□ The data indicate that there is a difference between groups of successful and unsuccessful blind rehabilitants when the variables included are those utilized in the current study. Table 6 summarizes the significant variables found by the analyses.

Interpretations

<i>Non-parametric Univariate Analysis</i>	<i>Parametric Univariate Analysis</i>	<i>Parametric Multivariate Analysis</i>
ORT & MOB VOC CL BEF VOC CL AFT YRS OF BL	ORT & MOB YRS EDUC IQ MOD OF TVL VOC CL BEF	AGE OF BL YRS OF BL AGE AT RHB ORT & MOB

TABLE 6
Summary of Significant
Independent Variables

In considering all levels of analysis, it appears that the most significant variable that differentiates between success and non-success in groups of blind rehabilitants is orientation and mobility.

A cluster of age-blindness variables may be observed in the multivariate analysis; an examination of the basic data patterns showed that all are highly intercorrelated. It appeared that the members of the successful group tended to be younger, to have been blinded at an earlier age, and to have been blind proportionately longer than members of the unsuccessful group.

It might also be observed that success is closely related to a higher level of work experience prior to rehabilitation.

In research of this type, the "insignificant" variables may well have importance in the real world. For example, number of years employed prior to rehabilitation appears to be a relatively unimportant characteristic in relation to success. Also in this category are degree of blindness, number of dependents in the family, and number of years in the rehabilitation program.

In separate tests, no significant difference was found in terms of sex or marital status.

□ The following analysis addresses itself to the main question involved in this research.

Conclusions

The fact that orientation and mobility appear to be the main characteristics relative to success or non-success, would seem to indicate that a great deal of emphasis should be placed on the development and training of blind rehabilitants in these areas within the scope of vocational rehabilitation programs. The case files showed that many individuals attempted orientation and mobility training several times before achieving success, which then led to employment. A larger proportion of successful cases might be processed in a shorter period of time if more clients gained a higher level of skill and competence in these areas through a richer, more intensive program.

The data also suggest the importance of contacting blind individuals at a comparatively early age in order to orient them toward an independent, productive life. Questions evolving from this are: What age is appropriate for initial contact, particularly with congenitally blind children? Is it possible to increase successful rehabilitation through contact with youngsters at high school age, junior high or elementary school age, or even pre-school age? Further investigation is needed to determine at what point initial contact can best be made.

□ It has been a traditional view among clinicians dealing with the rehabilitation of the visually impaired that a certain amount of time is required after the onset of blindness for the person to recover from the shock of his disability and establish a new self image. The accepted hypothesis is that this process, depending upon the individual case, usually takes around five years. Although the statistical results of the current study tend to support this hypothesis, it is suggested that this may well be a fertile area for further study. It may very well be possible to shorten this recovery period, thus salvaging a greater amount of individual contribution during the person's productive years.

Within the scope of this notion, however, is the consideration of location and identification of recently blinded individuals, who may sit at home for months or even years before initiating contact with a rehabilitation agency.

It is also not unreasonable to conclude that a person's success in rehabilitation is related to his level of job classification prior to rehabilitation. However, this appears to be one of those characteristics that should not be considered singly. The dispersion of this variable, and its relationship to others in the total picture, suggest careful evaluation of its autonomous contribution.

A further conclusion of this study is that a number of characteristics may be considered of moderate importance to success or nonsuccess. General intellectual level, education, mode of travel, and vocational aspirations after blindness occurred fall into this category. In considering the first two of these variables, it is interesting to note that rehabilitation counsellors are evidently able to assist clients of modest capacity in finding placement, which is in many instances commendable since today's work world tends to place a premium on intellectual prowess and educational achievement. Both IQ and level of education were, of course, found to be highly correlated with a higher level of vocational classification after rehabilitation. These items, though statistically non-significant, could be of considerable interest in helping establish general guidelines both at the counselling and the program planning levels.

In considering the results of this comparatively large scale, *ex post facto* study, it is important to realize that interpretations and conclusions were drawn within the framework of group analysis. To attempt to apply the data presented here to individual cases would be inappropriate and unreasonable. However, it is suggested that previous analyses derived from quantified data may not differ greatly from observations of rehabilitation counsellors and other workers in the field, and in general, may parallel their orientations

Shortening the Recovery Process

Conclusions were drawn within framework of group analysis

derived from experience. This conclusion is based upon patterns found after careful review of previous studies, and extensive personal discussions with experienced professionals.

The conclusions set forth might have significant value for administrators and planners who are responsible for maintaining a broad view of the situation. For such persons the data presented here may serve as guidelines for evaluation of current programs and in designing services calculated to meet the demands of the future.

☐ In further consideration of the current study, it is concluded that it may well be possible to conduct controlled investigation, using quantified data in a meaningful fashion, in an attempt to explore the yet unsolved problems involved with the area of the vocational rehabilitation of the visually impaired.

**Controlled Investigation May
Be Possible**

The June Outlook: A Special Issue on Aging and Blindness

Next month, the *Outlook* will present a special issue on aging and blindness. Experts in the field will cover the subject from several angles—among them, the diagnosis and treatment of eye ailments in the aging, rehabilitation, the mobilization of community resources, and the treatment of the aging blind in nursing homes and similar institutions.

Walter Boninger of the Greater Pittsburgh Guild for the Blind will propose a philosophy of action on behalf of the aging blind, Mildred Stern of the Detroit Metropolitan Society for the Blind will discuss ways of enriching their social lives, and George Hellinger of the Industrial Home for the Blind will discuss low vision aids.

A highlight of the issue will be a report by Herbert Rusalem, M. Conrad Range, Elizabeth Maloney and Peter J. Salmon on the Industrial Home for the Blind's Community Aging Project.

Research on a Comprehensive Follow-up Program for Mobility Service

In August, 1965, the New Hampshire Association for the Blind began a three-year research and demonstration project¹ which was designed to increase mobility services to as many blind residents as possible—vocational rehabilitation clients, children, and geriatric clients. The program² was state-wide and community-oriented. Its goal was to demonstrate a comprehensive team approach to service, including research on follow-up, readiness, rural mobility, and coordinated casework service.

Two of the most important research areas of the project were the development and analysis of a complete mobility follow-up program, and an intensive research study of client "readiness" for service. The first area, follow-up, is what will be reported in this paper.

□ Like others in the field of services for the blind, we believed that follow-up is essential for complete and comprehensive mobility service. And because we had just recently introduced mobility services into the state, we found ourselves in the unique position of being able to offer complete follow-up records on all clients. A review of the literature indicated that very little had been written about mobility follow-up, and that, as far as we could tell, no research-oriented follow-up had ever been conducted.

In rehabilitation in general, it is fairly well accepted that follow-up services, if used effectively, can be valuable in assuring comprehensive services. For agencies that have mobility programs, follow-up should receive special emphasis, since mobility programs deal specifically with the safety and independence of a human being. The mobility instructor has, in many instances, taken a client from protective surroundings (in which he may have been very dependent) to a new and challenging environment which requires him to interact, both mentally and physically, with that environment, and to do it effectively. His degree of success may in many instances be directly related to his degree of safety. Furthermore, it is our belief that the effectiveness of a client's mobility training is not fully known until he has had an opportunity to make independent³ use of his training over a period of time—hence the need for complete follow-up.

The procedure for follow-up, as initially developed, provided that each client who completed training be visited and evaluated by the peripatologist and caseworker (in separate visits) two months, one year, and two years after completion of training. The basic purpose of the peripatologist's follow-up was to determine how effectively a person was utilizing his training, and whether additional training was required. The follow-up visit consisted of a complete review of the training the client had received. A comprehensive training record,

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Follow-up Essential to Mobility Services

Two-month, one-year and two-year visits

which contained information about the client's final level of proficiency at the completion of his training, was used to score the client on each skill.

The casework phase of follow-up reviewed the following six areas: Problems affecting peripatology; new mobility needs; attitudes of clients; attitudes of others; employment; social activities. In addition to regular follow-ups, each trainee was encouraged to request additional training if he felt he needed it. Both the peripatologist and the caseworker recorded follow-up results and recommendations.

□ The tables below show the follow-up results for a three-year period of a state-wide, community-oriented mobility program in a rural state. Table 1 shows the results of two-month follow-up.

Results of the Visits

<i>Clients Who Received Mobility Training</i>	<i>Clients Who Received Two-Month Follow-up</i>	<i>Clients Who Needed Additional Training</i>	<i>Clients Who Received Additional Training</i>	<i>Clients Who Refused or Were Unable to Receive Additional Training</i>
91	70	17	13	4

TABLE 1
Results of Two-Month Follow-up

Of the clients who received a two-month follow-up, 24.3 percent needed additional training. Twenty-one clients did not receive a two-month follow-up for the following reasons: Seven terminated without completing training; five were active and not due for a follow-up at the end of the grant period; and nine had received training prior to the grant—they were re-referrals, and were therefore included only in annual follow-up.

Table 2 shows the results of one-year follow-up.

<i>Clients Who Received Mobility Training</i>	<i>Clients Who Received One-year Follow-up</i>	<i>Clients Who Needed Additional Training</i>	<i>Clients Who Received Additional Training</i>	<i>Clients Who Refused or Were Unable to Receive Additional Training</i>	<i>Clients Who Were Self-referrals prior to Follow-up</i>
91	44	14	10	4	2

TABLE 2
Results of One-Year Follow-up

Of the clients who received a one-year follow-up, 31.8 percent needed additional training. Forty-seven clients did not receive a one-year follow-up for the following reasons: 33 did not complete training by July 31, 1967 (Their one-year follow-up was due after the project had ended); seven terminated without completing training; three died; two moved out of the state; and two were self-referrals prior to the one-year follow-up date.

Table 3 shows the results of the two-year follow-up.

<i>Clients Who Received Two-year Follow-up</i>	<i>Clients Who Needed Additional Training</i>	<i>Clients Who Received Additional Training</i>	<i>Clients Who Refused or Were Unable to Receive Additional Training</i>	<i>Clients Who Were Self-referrals prior to Follow-up</i>
18	5	4	1	2

TABLE 3
Results of Two-Year Follow-up

Of the clients who received a two-year follow-up, 27.8 percent needed additional training. For the two-year follow-up to be included in this report, a client had to complete training within the first year of the project. There were 25 clients in this category. Seven of these clients did not receive a follow-up for the following reasons: Two of them moved out of the state; one did not complete his training; two died; and two were self-referrals prior to the two-year follow-up date.

Table 4 gives the reasons for additional need for training.

<i>Category</i>	<i>Number of Clients at Two-month Follow-up</i>	<i>Number of Clients at One-year Follow-up</i>	<i>Number of Clients at Two-year Follow-up</i>
1. New objective	6	0	3
2. Added phase	4	9	0
3. Inadequate Techniques	7	5	2
Total	17	14	5

TABLE 4
Reasons for Additional Need for Training

New Objective: Additional training classified in this category usually did not require instruction in new techniques and skills. In every case the additional training for the new objective category was orientation (e.g., orientation to a new school or a new town).

Added Phase: Additional training classified in this category required new techniques and skills. The training was more comprehensive than what the client had previously received and enabled the client to move further out into a new environment (e.g., from rural to residential or from residential to small and large business).

Inadequate Techniques: Additional training classified in this category indicated that the client, although traveling independently, was not adequately using the techniques and skills he had learned and consequently was not a safe traveler (e.g., when crossing streets the client was not using correct techniques or adequately listening to or interpreting sound cues; or he had inadequate orientation due to poor technique or ineffective interpretation of environmental cues).

□ We found that the needs for additional training at the two-month follow-up were mainly limited needs, requiring limited training. At one-year follow-up, after a substantial time lapse, we found more extensive needs, requiring more extensive training. In 61 percent of the cases, the reason for additional training was that the client required advanced training which would enable him to

Greater Time Lapse
Brought More Extensive Needs

travel further into the community. After the client has experienced success at one level of training, he then, in many instances, is ready and anxious to undertake additional training. It should be noted that the mobility program was flexible; it was designed to meet the individual needs and abilities of each client. It was not uncommon to see changes both in goals and in ability. In addition, the two-month and one-year follow-ups proved beneficial to those clients who did not need additional training. In most instances, minor corrections and the reinforcement of previously learned techniques were accomplished during the follow-up visit.

The caseworker made a total of 138 follow-up visits. Twelve new mobility problems and many new mobility needs were discovered by the caseworker at follow-up; however, seven of the twelve new problems, and all of the new needs, were also discovered by the peripatologist at follow-up.

□ The five problems discovered by the caseworker, (they involved five different clients) and not the peripatologist, all had to do with emotionally charged areas which the client could not discuss with the peripatologist as a teaching figure. One client would not discuss his reasons for discontinuing training. Another had negative feelings toward the peripatologist. A male client could not accept help from a young, female peripatologist. One client was afraid of bus travel, and another was not using his cane.

Some Refused to Discuss Problems with the Peripatologist

A total of 132 peripatology follow-up visits were made (two-month, one-year and two-year) and in 36 cases there was a need for additional training. Twenty-seven percent of all the trainees followed up required additional training.

Prior to the first follow-up visit, the client had had two months to apply and test the techniques and skills he had learned, without any supervision or reinforcement by the peripatologist. If there were areas that had not been adequately covered in training they became apparent during a comprehensive two-month follow-up evaluation.

Applying and testing skills

The one-year follow-up visit, like the two-month follow-up, was designed to indicate how effectively a person was utilizing his training and whether additional training was required. At the one-year follow-up there were more extensive needs requiring more extensive training.

Statistics for the two-year follow-up were too limited in number for meaningful conclusions, but it appears that some type of follow-up contact beyond one year may be indicated.

□ In 138 total follow-up visits by the caseworker (two-month and one-year), only five new problems were discovered by the caseworker that were not also discovered by the peripatologist. These five new problems involved five different clients, all of whom were receiving ongoing counseling which continued beyond the time of one-year follow-up. It was almost certain that these problems would have come to the attention of the counselor even if specific follow-up visits had not been scheduled. In our program it was concluded that follow-up visits by the caseworker in addition to follow-up visits by the peripatologist were unnecessary.

Most Problems Were Discovered by Both Caseworker and Peripatologist

☐ Most of us in the field of services for the blind realize that there is a shortage of trained personnel in the area of mobility. It seems important, therefore, that we set realistic goals for the number of clients that can be taught within a limited period, and that we keep in mind the quality, and not merely the quantity, of service. Our results are only a first step, one that we hope will lead to the compilation of more data on follow-up services for mobility programs. Follow-up was essential to our program, and we hope that the information that we have offered will encourage other agencies offering mobility services to initiate similar programs.

A First Step Toward a Comprehensive Mobility Program

1. This investigation was supported, in part, by Research and Demonstration Grant RD-1693-S from the Division of Research and Demonstration Grants, Social and Rehabilitation Service, U.S. Department of Health, Education and Welfare.
2. Special acknowledgment is made to Gale N. Stickler, executive director, New Hampshire Association for the Blind; William E. Patton, ACSW, Caseworker Supervisor; and Edward F. Rutledge, Ph.D., for their valuable contributions to the mobility project.
3. During certain phases of mobility training the client does travel completely on his own. The reference here, however, is to independence after the training program, when the client decides for himself when and where to travel, without any direction or support from the mobility instructor.

Notes

Barr Slate Available from St. Louis Firm

Production of the Barr slate, an upward-writing braille slate that uses plastic-type paper, has been announced by the St. Louis Society for the Blind.

The new slate, the result of several years of work on the part of an occupational therapist working with newly blinded persons, is being produced by Orbit Products Company, a firm established by two St. Louis men especially to manufacture this product. Since it is considered an experimental model, it is being sold without guarantee.

A complete description of the slate is contained in the article, "Developing and Evaluating a Simplified Braille Writing Device," by Ruth L. Barr (*New Outlook*, May 1968, pp. 148-152).

The Barr slate can be ordered from Orbit Products Company, Inc., Box 123, Manchester, Missouri 63011. The price is \$3.00.

Sharing Your Knowledge of Folk Guitar with a Blind Friend

A blind person often has more free time than his sighted friends, but fewer specific leisure skills or abilities with which to fill this time meaningfully. Many sighted individuals do possess these leisure skills, but feel they are not qualified to teach them to blind persons. An interest in bringing these people together stimulated the writing of this article.

The current interest in folk music has produced a large number of guitar players. My purpose in this article is to encourage the folk guitarist to teach what *he knows* about guitar to a blind individual. My main emphasis will be on aiding the sighted person to describe his playing method systematically. General clues, suggestions and techniques are described, based on my amateur experience in teaching guitar to blind persons. The approach used is informal and concentrates on the elementary level—strumming and singing traditional folk tunes. Scales, music theory and advanced techniques need not concern beginners. The goal is recreation through participation.

□ I am not setting forth a definite "style" or "method" of guitar playing, but pointing out general techniques of teaching the method *you* know. The main objective is to help the instructor become aware of the fact that he must verbalize all directions in a consistent, descriptive, systematic way.

The first step is to teach your student to sit correctly when he plays the guitar. There may not be a "right" or "wrong" way of doing anything in guitar playing, but there are some things which tend to make playing easier; correct sitting position is one. It is best to use a straight-back chair. This allows for free arm movement around the guitar and minimizes fatigue. Crossing the right leg over the left leg helps support the guitar in the playing position.

The next step is to teach the student to hold the guitar. Any sighted person will have some idea of how to hold a guitar, but a blind person is often at a complete loss as to what goes where. Check the following points to insure a correct position.

1. Is the guitar held parallel to the body—perpendicular to the floor?
2. Is the upper right arm resting on the largest part of the guitar body?
3. Is the left hand coming around the under side of the guitar neck?

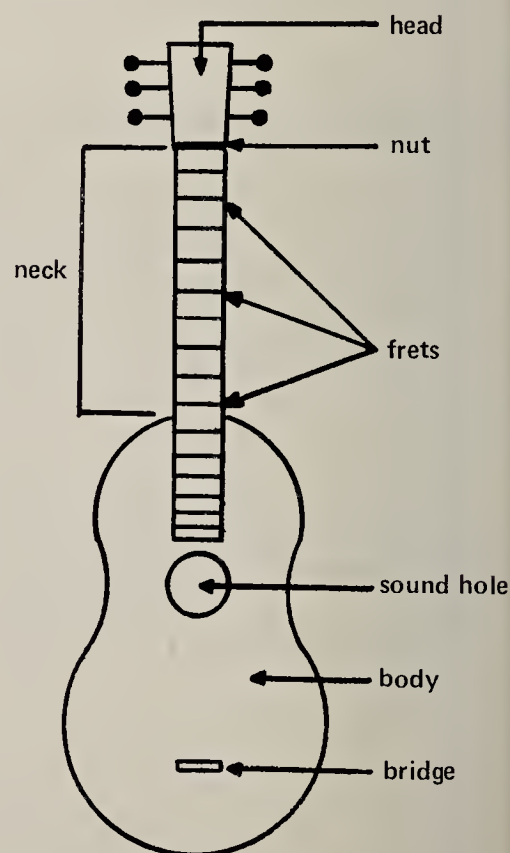
Thumb placed in the middle of the back of the neck. The thumb presses on the back and the fingers on the front side of the neck.

When the student is holding the guitar in the proper position, identify the parts of the guitar by touch and location. *Avoid placing hands on the parts.* Give directions and let him find the parts. Right from the beginning verbalize instructions in a descriptive way.

CAROL ANN PETERSON

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Instructions Should Be Consistent,
Descriptive and, Systematic



The guitar and its parts.

Now discuss how the sound is made—by the right hand strumming or picking over the sound hole—and how placing the fingers in between the frets changes the sound of an individual string. Here the instructions should be very descriptive and precise. The instructor might explain how the sound is made this way:

"When a string is hit, the whole string vibrates from the bridge to the nut (Have the student feel the bridge and the nut, and then hit one string). All along the neck are inlaid bars of metal, called frets. When you hold the string down between the frets, you cut the sound off at the lower fret bar rather than at the nut, thus changing the pitch. A chord is a combination of several open strings and several strings held down at various frets."

Next, teach the student to tune the guitar. A guitar can be tuned for the blind student, but his frustration with an "out of tune" guitar between lessons will be immense. It is best, therefore, to take time to teach the tuning of the guitar at the start. It demands patience, but prevents frustration in the long run.

A. Procedure

1. Name the strings—e,a,d,g,b,e—and call them by name. Here's a handy sentence to help memorize the letters: "Elephants Are Dirty Gray But Elegant."
2. Identify the pegs that go with each string.
3. Explain that turning the peg *away* from the body will make the pitch *higher* and that turning the peg *toward* the body will make the pitch *lower*.
4. Identify the fifth fret with a notch or a piece of tape on the side of the neck.
5. Start with the bass "e" string and assume that it is reasonably right in pitch. Explain that you can hold the "e" string down at the fifth fret and tune the open "a" string to it. Continue across the strings by following this formula:

"a" string at the 5th fret	tune the open "d"
"d"	5th "g"
"g"	4th "b"
"b"	5th "e"
	(high "e")

This somewhat tedious method is learned rather quickly in most cases.

☐ Now that we have taught the pupil to sit and hold the guitar correctly, and to tune it, we can move on to the more pleasurable phase of teaching him to play it. His first step will be to learn the basic chords. In this phase, directions are much easier if everything has a name and instructions are given in a consistent way. These suggestions should help:

1. Call the strings by name—tell the student that "e" means the bass "e" unless you say "high e" or "treble e."
2. Identify the frets by number—open, 1st fret, 2nd fret, etc.



Hold the "e" string down on the fifth fret.



Turn the peg to raise or lower the pitch.

Teaching the Basic Chords

3. Identify the fingers by number.
4. When talking about a single string, call it by name "e", "a", and so on; but when discussing a chord, such as E, always call it "E chord."

Suggestion: Read through this chapter with a guitar in your hands and go through the motions, following the instructions.

Begin with the E chord, explaining which chord you are going to be teaching. Don't place your student's fingers on the neck—if you do he will have no idea of how to put the chord on by himself. Verbalize directions thus:

1. First finger, first fret, "g" string.
2. Second finger, second fret, "a" string.
3. Third finger, second fret, "d" string.

Now check the following:

1. Is the thumb of the left hand in the middle of the back of the neck?
2. Are the strings held down by the finger tips?

Once the fingers are in the right position and the sound of a simple right hand strum is clear, make your student aware of the position of his fingers in relationship to each other. Remove the chord and start again.

Important: Obviously you do not want the pupil always to place the chord on one finger at a time, but until he has the correct position memorized, it is a good method to use.

After the pupil has learned a chord, teach the transition to the next chord. Let's assume that you are teaching the key of E. First, you want to explain that a given key has three basic chords (for the key of E they are E, A and B⁷). There is little value in teaching the A chord or B⁷ chord from an "all strings open" position. Therefore, teach the A chord by making a transition from the E chord to the A chord.

As you teach transitions, you are going to use the terms "up" and "down" in relation to finger movement. So begin by defining these terms. In the correct guitar holding position, "up" means toward the ceiling and "down" means toward the floor.

These are the instructions for teaching the transition from the E chord to the A chord:

1. Lift the fourth finger off the neck.
2. Move the second and third fingers down toward the floor—one string each—keeping them on the same fret.
3. Put the first finger on the "g" string, first fret.

You might use this phrase to point out the position of the fingers in relationship to each other: "All in a row on the "d", "g" and "b" strings, all on the second fret."

The transition back to the E chord is, of course, the exact reverse of the above procedure:

1. Lift the fourth finger off the neck.
2. Move the second and third finger up toward the ceiling, one string each, still on the same fret.

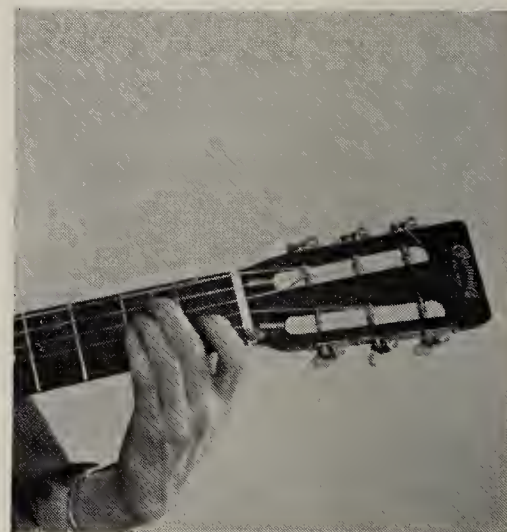


Identify the fingers by number.



String should be held down with the fingertip, not with the ball of the finger.

Fingers in position for an E chord.



3. Put the first finger on the "g" string, first fret.
Have the student practice these changes until the transitions are smooth and automatic. Then proceed to a B⁷ chord.

A B⁷ chord is relatively easy if the second finger (E chord, second finger; "a" string, second fret) remains on the neck and acts as the "anchor man" for the other fingers to move around. These are the instructions for the transition from the E chord to the B⁷ chord:

1. Leave the second finger where it is.
2. Move the first finger to the "d" string (or up one string), still on the first fret.
3. Move the third finger to the "g" string (or down one string), still on the second fret.

Be sure to tell your student not to play the bass "e" with this chord.

The transition back to the E chord is again the reverse of the above.

□ As soon as the student has learned three chords in the same key, (for example: key of E—E, A, and B⁷), you can proceed to the singing and strumming stage. Many familiar songs, such as "Buffalo Gals," "Rock-a My Soul," "Clementine," "He's Got the Whole World In His Hands," and "Skip to My Lou," can be played with just two chords (E and B⁷). A host of others requiring three chords include "Goodnight Irene," "This Train is Bound for Glory," "This Land is Your Land," and "Swing Low Sweet Chariot." These simple tunes have basic chord patterns that can be learned and remembered easily.

Singing the Familiar Songs

Here are some general suggestions for use at this stage:

1. Stick with one key until it is learned thoroughly.
2. Forget minors, variations, etc., for a while.
3. Use a capo to move the pitch into voice range.
4. Feel free to start with any key you like and work out transitions *to* and *from* the beginning chord.

We have used the key of "E" because of the convenience of the transitions. The changes do not involve moving all of the fingers to entirely different locations—as must be done to make the change from the G chord to the C chord.

This is the recommended learning sequence of keys, based on the degree of difficulty of the chord changes:

- | | | |
|----|----------|---|
| 1. | Key of E | E, A, B ⁷ |
| 2. | A | A, D, E ⁷ |
| 3. | D | D, G, A ⁷ |
| 4. | G | G, C, D ⁷ |
| 5. | C | C, F, G ⁷ (assuming you use a bar F) |

The difficult changes are easier once the student is more familiar with the guitar and the whole process of changing chords.

□ There remains the problem of teaching right hand technique. For most guitar students, right hand styles come easy. Most people, at least most right-

Right Hand Techniques

handed people, have a dexterity that enables them to learn strums and picking without much trouble. Blind persons, however, sometimes tend to hold themselves stiff; they may require much more attention on the right hand. A simple strum, for example, may take them several weeks to acquire. Flexibility in the wrist and elbow must be developed. With beginning students, work on learning chords for a while then move on to right hand techniques without chords. An equal amount of time will probably be required on each. If you are teaching a new strum or pick, allow several weeks of practice before combining it with chords in a song.

Right hand techniques vary so much that it is difficult to set down any general suggestions. The important thing is to break them down into their elementary parts and describe each movement or part in descriptive terms.

This is one way to teach a four-beat arpeggio:

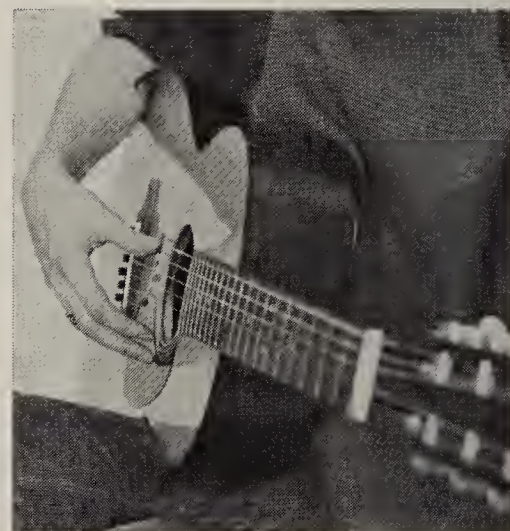
1. Position of the fingers—
 first finger on the "g" string;
 second finger on the "b" string;
 third finger on the "high e" string;
 thumb on the bass "e", "a", or "d" depending on the chord being used.
2. Hit the bass string with a downward motion and pick up on the treble strings individually, first finger, second finger, third finger in a steady 1,2,3,4 count (you may prefer to say "bass 1,2,3").

Things to watch for:

1. Are the fingers picking from the knuckles so that replacing them on the strings is not a major job of re-location?
2. Are the finger tips just barely on the strings, so that fingers do not catch under the strings (picking is actually done with the finger nail)?
3. Is the bass string being alternated for variety? Work out your own technique for teaching your strums and picks. By this time your personal system of identifying terminology should be fairly well established, and mutually understood.

The left-handed person is at no disadvantage when playing the guitar as described in this article. Since chording is done with the left hand, the "lefty" usually has an advantage in the early stages of learning. However, the guitar can be restrung and the position reversed to accommodate the individual who would rather play in complete left-hand style. All directions in this article would then be reversed.

□ In most cases the opportunity to learn folk guitar is a welcome adventure, and if the blind person knows what he is getting into he will be willing to learn the style you can teach. Singing along will probably be expected and enjoyed. The great thing about folk music is that it is not a perfectionist art, but a participant sport; the important thing is not the quality of the voice, but the amount of enjoyment received.



Wrist and elbow should be flexible; strumming should be done with the soft part of the thumb.

Not a Perfectionist Art, but a Participant Sport

Corrective and Recreational Gym Classes for the Blind

An integral part of any rehabilitation program for blind persons should be a comprehensive, positive gym program. The California Orientation Center for the Blind has one of the best equipped gymnasiums of any school in the country, and devotes one hour a day to physical education.

There are many reasons why physical education is important for blind students. In the first place, it improves fitness, muscle tone, and coordination. This is especially important in the case of teenaged congenitally blind boys, who often neglect this important part of growing up. It also augments the blind student's efficiency and confidence in performing routine physical tasks, and certainly in traveling well.

When activities of the right type and dosage are used, the benefits derived are many: (1) The heart and blood vessels operate more efficiently. The heart is able to pump more blood per contraction, thus doing more work with less effort. (2) The respiratory system functions more efficiently. Exchange of carbon dioxide and oxygen takes place more rapidly and more completely, and vital capacity is increased. (3) The work capacity of the muscular system is increased—making for greater endurance. (4) The central nervous system is trained to coordinate other systems effectively. Finally, general health is improved. Proper exercise, then, increases the individual's zeal, enthusiasm and alertness, making him a more vibrant, efficient being.

□ At the California Orientation Center for the Blind, our general conditioning routine is varied. We do calisthenics, (usually for about 15 minutes), using all the joints and large muscle groups. We also do mat work (another 15 minutes), emphasizing the use of the torso muscles. We spend another 15 minutes working out on our apparatus. This includes a chinning bar, parallel bars, a punching bag, wall pulleys, a climbing rope and a horizontal ladder—all good for exercising arms and shoulders. The horizontal ladder is a favorite with the blind because it allows for continuous contact. The punching bag and the skip rope are used to gain endurance.

We use the climbing rope as well as a Lat machine to develop the latissimus dorsi muscle of the back. The wall pulleys also exercise the back muscles, as does horizontal work on the mat. The leg muscles are developed on the treadmill, stationary bikes, tandem bicycle, and on outdoor runs with the instructor. The blind students especially like the tandem, because it teaches a concept while providing exercise.

□ Tension springs aid the chest and shoulder muscles, and the hand grips exercise the hands, wrists, and fingers. We use dumbbells and barbells for various exercises, and have an exercise bench for bench pressing. Most ab-

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A Varied Conditioning Routine

How the Apparatus is Used

dominal work is done on the mat, but we use the medicine ball to supplement it. A volley ball is used for arm development and general coordination. Girls use the ballet bars for stretching and graceful movements. The last 15 minutes of the class are used to return equipment, and to shower.

The variety of equipment and the changes in routine help to retain interest and enthusiasm. However, one does not need an elaborate gymnasium to have a good physical education program.

When the students are using the equipment, the instructor circulates, suggesting and demonstrating movements, and naming the muscle or muscle groups developed by each particular piece of equipment. He explains, for instance, that the proper striking of the speed bag is good for the arm and shoulder muscles. At one time we had twelve students, eight of them totally blind, who could strike it as rhythmically and rapidly as a boxer.

The instructor may also start a student at the bench, suggesting possible weights to bench press with the bar bells. He may illustrate how to walk the rungs of the overhead ladder, "skin the cat" and, at the end, do chinups. He may show students how to use the treadmill, rowing machine, climbing rope, and wrist roller. He may show dips or swinging dips on the parallel bars, and hand walking or jumping across the bars. Often the instructor will ride the tandem bicycle with one of the students.

□ The calisthenics are performed, rhythmically and slowly, to four counts. We use at least two exercises per muscle group. Since there are enough simple exercises to develop all parts of the body, exercises involving long, complicated descriptions are not necessary. (If at a loss as to what exercise to choose, the instructor should remember the following rules: All that is needed to work the desired muscle is to bring its origin and its insertion toward each other. Exercises should be done slowly, going through the full range of motion). If the instructor is enjoying the exercise, the enthusiasm is contagious, and the students will participate fully.

One must always keep in mind the differences in the ages of the students. The program will not be the same for a 20-year-old who is interested in body building as it will be for a 57-year-old. Also, in our case, where the average length of stay is six months, we must remember that some students have been working out for several weeks, while others are just beginning.

Contests, sports, and games can provide simple conditioning. Medicine ball passing from student to student around a tight circle, with each student shoving it into the next student's stomach, is an excellent abdominal strengthener. After a warmup, it can be announced that the person who drops the ball or makes a bad pass must do 5 pushups. The others can count as he does them. "Tug of war" with equal teams is an excellent activity, as is wrestling—many blind wrestlers do extremely well in competition with sighted wrestlers.

The students can play baseball, using a large ball with a bell, or they can play catch with a volley ball. In the latter game, the instructor stands in the center of a circle of students—the circle having a radius of about 15 feet. Before he throws the ball to a student, he calls his name so that the student

The instructor provides guidance

A Simple Role for Calisthenics

Age differences must be kept in mind

can poise himself to receive the ball. Catching it after one bounce, in the case of a drop, does not constitute a miss. We have gone as high as 150 catches without a miss. We try for new "school records" each time. Some catches and recoveries are great, and the game is very good for developing coordination and improving reflexes—thus, it is helpful in learning to travel.

□ Organized games are fun: Divide the group into teams and, using any type of ball, have the teams compete against each other in relays. An example is to have each team line up in single file. At a signal, the first man starts the ball back toward the rear, and the rear man brings it forward. The first team to finish wins. The way the ball is passed can be varied—once back around the right hip, the next time the left, a third through the legs, and a fourth over the head.

Students enjoy contests—like arm wrestling, leg wrestling, pushup or situp competitions, seeing how long each one can keep the hand grip squeezed together, holding a coin until it drops, etc.

There is an occasional younger individual who is especially interested in gaining strength and increasing his muscular girth. To accomplish this, we teach weight-lifting in preference to isometric and isotonic exercises. It is easier to measure energy expended, and to estimate progression and gain when working with weights. When a student can do more than ten repetitions in any movement, the weight is increased. Once a week we have "heavy day," when the maximum weight is used in each exercise without any repetitions.

Among any sizable group of blind students, we find related and unrelated conditions and diseases which can be ameliorated by corrective exercise. However consultation with a physician is helpful, and in most cases mandatory, before proceeding with the exercises.

□ Two conditions very often seen in the congenitally blind are poor posture and peculiarities in gait. Before we begin corrective exercises for posture, we feel that it is very important to talk to the student—to inspire in him a desire for good posture. We emphasize the economic value of creating a good impression, and explain what proper posture is. Suggested exercises are: Walk and stand tall; stretch the back of the top of the head toward the ceiling; and tuck the stomach in and roll the hips under (this is for the thin as well as the obese). This serves to thrust the shoulders back, not to an exaggerated position, but enough to elevate the chest so that body alignment is exactly as it should be.

Common postural defects are slump (kyphosis), protruding stomach with corresponding lordosis, and head tilting, either up or down. The head tilting often results from the fact that the student has, or once had, some light perception or a small amount of sight in one of his eyes, and is trying to focus this eye on the sidewalk or the sky. Usually, kyphosis, lordosis, and protruding stomach all go together; corrective exercises may therefore be needed in all areas.

The key muscle group to work on is the abdominal. They must be toned and shortened to hold the viscera in, and to push the lower back out to cor-

Organized Team Games

Correcting Posture and Gait

Slump, curvature and head-tilting

rect concavity. The exercise should be done lying on a mat with knees up, feet flat, fingers laced with hands placed on the stomach. The movement is to curl up (head, shoulders and elbows) to as near a sitting position as possible, keeping knees up and feet flat. This shortens the abdominals, and lengthens the erector spinae muscles of the lower back, flattening the back. Another good exercise can be done from the same position: With knees apart slightly, pull the stomach in, flatten the lower back, and tilt the pelvis so that the tip of the spine is raised. This can also be done standing against a wall with the knees slightly bent. These exercises will, incidentally, be excellent for eliminating low back pain caused by poor posture.

□ To correct kyphosis we work on the trapezius and rhomboids—abductors and rotators of the scapula. A good exercise for this purpose is to face the wall pulleys, cross arms and grasp the handles, keep arms straight and abduct arms. Another is to have the student lie prone, with arms extended at right angles to the body, then to have him raise his arms against the instructor's resistance.

Pushups develop the pectorals and extensors of the shoulders, but also, if done properly, strengthen many muscles that align the body. The abdominals are used to keep from sagging in the middle, the back muscles to keep from raising the buttocks too high, and the neck extensors to hold the head up.

The tilted head can also be helped by exercising. Pushups help, as just mentioned; another excellent method is to have the student resist head movement with his own hands. Place the hands behind the head if the head is held forward and down, and push back against the hands to shorten and strengthen neck extensors so that the head stays up.

Gait training is very important. Many students toe out; others come down with their foot flat. Others have a peculiar bouncing stride, not keeping their head level (a marking time, in effect). First one must emphasize proper gait, in which the heel strikes the ground first. Then there is a rolling on the outside of the foot to the toe, the tip of which leaves the ground last in coming forward for the next stride. Walk close beside the student with your arm around him; exaggerate his faults and demonstrate what is needed to correct the toeing out. Work on strengthening the following muscles: the internal rotators of the leg, the semimembranosus, the sartorius and the popliteus. The best exercise to shorten these muscles (thus internally rotating the leg) is to have the student lie on the mat in a supine position, keep the legs straight, and fix the ankle. The instructor grasps a foot in each of his hands, and tries to prevent the student from rolling the legs inward. He offers as much resistance as he feels the student can take to assure that the student will make maximum gains in strength.

□ There are conditions in which changes in the skeletal structure make improvement difficult—for example, when a student of 18 years or more has been walking with toes turned far out all his life. But no harm will be done by giving him some corrective exercises, and there may be some improvement.

Letting the students handle a medical skeleton to get a sense of what happens to bones when one walks properly is a great help. The instructor can

Correcting Kyphosis

Correcting head-tilting

Faults in the Skeletal Structure

use the skeleton to demonstrate proper alignment of the spine in good posture. He can clearly show the origins and insertions of muscles, and what actually happens to the bones when muscles are contracted.

□ Diabetes is one of the three leading causes of blindness. We are, therefore, concerned with the diabetic's participation in, and benefit from, our gym program. It is very important to maintain a regular exercise regimen so as not to upset his diabetic balance. Activity is necessary to maintain good circulation and keep weight controlled.

Arthritics can improve their fitness by mild gym work, and can maintain range of motion in all joints by activity (when they do not do this, their joints may become ankylosed). When arthritic pain is intense, we give only light exercise, but try to carry the joint through its entire range. If the pain is extremely acute, it is very important to continue contracting the muscles that move the joint. Several arthritics who have persisted with their exercises upon returning home from a stay at our center have found they are enjoying better health as a result. Diabetics and arthritics can participate in all the general conditioning, but it is advisable that they make it moderate, and not be concerned with big gains in strength and size. The instructor must be careful to avoid the risk of even minor injuries.

We have also had blind amputees. For them, proper stump management is very important. They can learn this by stretching and exercising the stump, maintaining proper position to reduce the chance that the stump will elevate and rotate. This can happen because of the loss of the origin or insertion of the muscle that moved the limb. In this group belong those that have limited use of a hand because of brain injury or tumor. The muscles of the arm atrophy considerably because the hand cannot pick up anything to exercise them. A prescribed exercise program, using manual resistance, can retain and restore maximum use of the arm.

Occasionally a doctor will order "no violent movements" because of a detached retina or the possibility of detaching one. In this case, the student does only those activities that require no sudden jerky movements, and no lowering of the head. But he can still find benefit and enjoyment in the gym.

□ The gym teacher can assure maximum participation in the program by establishing good rapport with the students, showing a positive attitude about possible gains, showing a genuine interest in the well-being of all students, and in general setting a good example.

Students are often so pleased and encouraged by their physical improvement as a result of the gym program that they continue it at home.

A regimen for diabetics and arthritics

Exercises for blind amputees

The Teacher Must Set an Example

Piano Tuning: A New Look at an Old Skill

At the turn of the century, most residential schools for the blind in this country offered training in piano tuning. The amount of repairing taught usually depended on the qualifications of the instructor.

By the mid-twenties, radio had brought music into the home, and the player piano reached its peak. Factories themselves trained men to service them. But a few of the more capable blind craftsmen mastered the techniques of servicing these instruments.

The tight labor market accompanying World War II provided work opportunities in many new areas of employment for men and women with little or no sight. Following the war, the G.I. programs brought into being a large number of piano tuning schools, and factories still offered on-the-job training courses.

□ But by this time, residential schools for the blind had curtailed vocational training in favor of academic and recreational activities. Recently, some of the larger schools have reversed the trend and are now accelerating training in tuning and repairing. The demand for qualified technicians is obvious. Every issue of the *Tuner's Journal* contains want ads. Since the price of a new grand piano has risen substantially, it is now economically feasible to completely rebuild many of the better 50- and 60-year-old grands.

Today, a capable piano craftsman has a potential gross income of \$20,000 a year. Some do better. A tuner averaging four tunings a day, without working on weekends and taking a two-week vacation, could earn \$16,000 a year tuning alone.

Candidates for training in piano tuning should show a higher than average mechanical aptitude as well as musical ability. Too many blind tuners have come out of schools not knowing how to repair and unable to meet and deal with the public. Such tuners, particularly in larger cities, are employed at low wages by employers who keep them in the back shop while their sighted fellows get outside calls that pay regular fees.

The Piano Technicians Guild, which now has one or more chapters in every state, is making real progress. A number of committees have developed standards for examinations and accreditation, as well as ethics, public relations, and ways of cooperating with other groups and associations in music. The Guild also conducts local, regional, and national technical workshops to help upgrade apprentice technicians to registered craftsmen.

□ The demand for good piano tuners is growing, and more and more schools and other institutions are training people to meet the demand. If this trend continues, large numbers of blind persons may, as they have in the past, find lucrative and satisfying careers in the practice of this skill.

M. A. McCOLLUM

Mr. McCollom is employment placement consultant, Division of Services for the Blind, Kansas State Department of Social Welfare, Topeka.

Reversing the Trend

Mechanical aptitude and musical ability needed

The Demand Is Growing

Delivering Recreation Services to Blind Youth

There have been a number of good articles written about the need for leisure time activities and recreation programs for blind persons. The purpose of most of these articles has been to underscore the value these programs have in character development. All of the authors agree that the healthy peer group experiences these programs provide are the arenas where our socialization needs are met, and that peer group experience is absolutely essential if we are to realize acceptance, recognition, friendship, and love. These basic needs we all have in common. The purpose of this article is more specific; it is intended to demonstrate the technique we have used at the Massachusetts Association for the Blind in making recreation programs available to blind youth.

□ Many of us are aware of the need for such a service. But being aware of the need is one thing and meeting the need quite another. From a nationwide point of view, there are not enough agencies offering recreation services to blind youth, and most of the agencies that do offer such services are those specializing in services to blind persons. These agencies have several disadvantages where leisure time activities for youth are concerned. This is chiefly because a large percentage of blind persons are in the old-adult and aged populations, and the membership of these agencies reflects this fact. Practically speaking, blind youth have nothing in common with these people—except blindness. These agencies, even those whose philosophies call for integrating the blind with the sighted, tend to become segregated centers for the blind. And in any case, these agencies are still so few and far between that they remain inaccessible to the large majority of our blind youth.

This dearth of recreation services for blind youth has existed too long. And the tragedy of the matter is that it need not exist at all. There are several techniques available to us that are simply not now being adequately implemented.

One technique of integrating blind children into community life—a technique that I believe has a great deal of merit—is described by Marjorie Laufman in her article, "Blind Children in Integrated Recreation."¹ In this article, Miss Laufman explains how the social caseworker can act as liaison between the child and his parents on the one hand, and the community recreation facilities on the other. It seems to me that Miss Laufman's technique deserves more attention than it has received.

□ The technique we shall describe in this article is especially useful in large metropolitan areas, but it can be used elsewhere. In essence, it in-

ARNOLD E. MATHESON

Mr. Matheson is director of group work service, Massachusetts Association for the Blind.

Realizing and Meeting the Need

Available techniques are not adequately implemented

Social Clubs in Existing Community Centers

volves the establishment of social clubs for blind youngsters in existing community group service agencies like the Y.M.C.A., the Y.W.C.A., Boys' Clubs, settlement houses, and community centers. In these social clubs, blind youngsters are integrated with their sighted peers, and meet once a week for two or three-hour sessions. The members engage in activities in accordance with their interests and needs, and the facilities available.

How do you set up such a program? There are, of course, no hard and fast rules, but the following description of a step-by-step process may prove helpful.

□ Once an agency has decided to assume the responsibility for organizing this type of recreation program for blind youth, it must assign or hire a full-time group worker or recreation specialist, who will devote himself entirely to this program. We recommend that this person be a professional group worker or recreation specialist, whose training has acquainted him with group dynamics, group processes, the psychology of personality and behavior, program development, and recreation skills. Knowledge of these fields is essential for this kind of work.

This person, whom we shall call a coordinator, must then take the following steps:

1. Draw up an outline containing the rationale for the program, its objectives, and the anticipated phases of its execution.
2. Explain and interpret his proposed program to the executives of agencies and other community leaders directly concerned with blind persons in order to win their cooperation and support.
3. Seek out the blind population he intends to work with, and classify them according to age—eight through twelve, teenagers, young adults, or whatever classification he deems appropriate. Having done this, he should screen all those interested in the program. Youngsters with additional physical handicaps or mental or emotional problems that would seriously interfere with group activity or group development should not be considered for this particular program; special programs can be organized to meet their needs.
4. Select the most likely places for establishing groups. This selection should be based on the geographic distribution of clients available. Any area that has a nucleus of five or more clients can support a group.

The coordinator, or whoever does the screening, should guard against promising service to clients, especially those in the remoter parts of the agency's service area, unless he is absolutely sure he can deliver it. Parents of handicapped children have too often been referred from one place to another in their search for services. Each referral, especially in the beginning, raises new hopes; and the parents cling to these hopes until the reality of passing time awakens them to the hopeless truth—no service is available. We should all try to avoid contributing to this sad condition.

Having established his program, the coordinator can proceed to contact the community center most centrally located or suitable for the group,

A Full-time Worker Should Be Hired

Taking the first steps

Avoid promising services that can't be delivered

and seek its involvement. There should be established from the outset a set of policies which will govern the responsibilities of both the coordinating agency and the cooperating community agencies. We suggest that the following policies be established:

☐ Cooperating agencies should be selected on the basis of:

1. An interest in, an acceptance of, and a willingness to work toward the goals of the program as set forth by the coordinating agency.
2. A commitment to provide services to the visually handicapped as part of an overall community service.
3. Demonstrated standards of professional service.
4. A location convenient to clients.
5. Acceptance of all races and creeds.

The role and functions of the cooperating agency should be:

1. Provision of a group work staff.
2. Participation of group leaders in three to five training meetings a year.
3. Participation of the group leaders in an intensive one-day training program at the beginning of the program season.
4. Maintenance of individual and group records to be shared with the program coordinator.
5. Final acceptance of individuals and their placement into appropriate groups.

☐ The role and functions of the coordinating agency should be:

1. Provision of consultation on a regular basis.
2. Preliminary screening of all referrals to the cooperating agency (this includes the transmission of appropriate summaries).
3. Development of training materials and programs.
4. Development of other appropriate educational activities, such as seminars and institutes.
5. Provision of a stipend sufficient to pay for a weekly session for each group.

Once the responsibilities are outlined and mutually accepted, the acceptance should be confirmed in writing by the executive director of the cooperating agency and by an appropriate official of the coordinating agency.

We believe that this approach to the community centers makes it economically feasible for the coordinating agency to serve a large number of clients. We also believe that by using the community center's own staff as group leaders, we improve our liaison with the agency and make our objective of having these agencies eventually assume total responsibility for serving the blind persons in their communities much easier to achieve.

The periodic meetings for the group leaders are essentially training sessions. They should cover such subjects as orientation to working with blind persons, program objectives and ideas, group dynamics, specific problems encountered in the groups (or with individuals within the groups), recording of data, and evaluation.

Criteria for Cooperating Agencies

Role and Functions of the Coordinating Agency

Advantages of using the community center staff

To involve the community agencies the organizer must call on the directors, explain his program, discuss the policies mentioned above, and alleviate any fears and apprehensions they may have about injuries that might occur to the blind youngsters on their premises. On the last point, there is sufficient evidence to indicate that blind persons are no more accident-prone than anyone else (A reading of Charles Buell's article, "Physical Education for Blind Children in Public Schools,"² will help the coordinator speak with conviction on this point). Our own experience at the Massachusetts Association for the Blind, after more than a year of programs involving more than 100 teenagers and some young adults, is that we have not had a single injury of any consequence. Our program has included such activities as boating, swimming, diving, use of the trampoline, tandem bicycling, tobogganing, overnight camping, and horseback riding.

□ Once the community agencies have decided to participate, and the group leaders have been oriented to their jobs, sighted volunteers or group participants should be enlisted. These people should only be accepted when they can honestly commit themselves for a program that will last a full school year. We suggest that volunteers for these groups be selected by the community agency staff from the agency membership. It has been our experience that sighted volunteers enlisted on this basis are more consistent in attendance than volunteers enlisted under other arrangements. Once they join the groups, however, they should no longer be considered volunteers, but group members, who are now sharing equal status with their blind counterparts.

Once the blind and sighted group members have been selected, and arranged in groups with, preferably, an equal number of each, the group leader brings them together at a time convenient to all, and the program is under way. From this point on, the coordinator need only keep an eye on the program to see that all concerned remain involved until the group has had sufficient time to prove its worth.

□ The coordinator should, of course, offer specific help from time to time. He should, for example, meet with the parents of each group. This gives each parent an opportunity to ask questions about the program in general, to discuss his own child's particular group, and to make recommendations. It also enables the coordinator to solicit the parents' cooperation in such areas as insuring consistent attendance and organizing car pools to transport the group members on special excursions.

It is our hope that this information will be of some help in bringing more recreation and leisure time activities to the blind youth of our country. The group interaction that takes place will help each member appreciate his own status, learn his strengths and limitations, and enjoy the give and take of getting along with others.

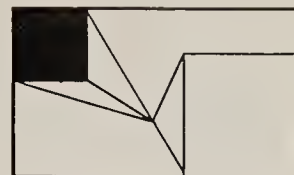
Sighted Participants Should Be Enlisted

Coordinator Should Offer Some Specific Help

1. *The New Outlook for the Blind* 56: 81-84 (1962).
2. *The New Outlook for the Blind* 61: 248-254 (1967).

References

Letters to the Editor



Dear Editor:

I have just read an interesting article by Robert V. Crouse entitled, "The Long Cane in Great Britain" (*New Outlook*, January 1969, p. 20). Since the article focused on the long cane, it touched off in me a serious concern for the long cane movement. The long cane movement is supported by a number of individuals, both sighted and blind, who seem to believe that the long cane is the single most important mobility tool known to blind people. Not only do they believe this, but they take great pains to convince the uninitiated about the many advantages of the long cane.

The main problem is not the long cane itself. Having been a mobility instructor for the past eight years, I have seen how it can benefit some blind people. I am concerned, however, about the efforts to establish the long cane, in this country and elsewhere, as the best mobility aid, to the exclusion of other tools of travel. Lip service is often paid to other aids such as the dog guide, the electronic device, the short cane and the folding cane, but the hero in mobility remains the long cane. More time and energy is devoted to "selling" the long cane than to improving various kinds of canes and cane techniques. This treadmill feature has a paralyzing effect on the field of mobility, and, more importantly, reduces the choices open to blind people in need of mobility training.

Being very much a part of the long cane crusade, Mr. Crouse reveals the ultimate objective of his work in the concluding paragraphs of his article:

"The most intriguing facet of the long cane in Great Britain is the speed with which it has been accepted. The development of the long cane in the United States took nearly 20 years from inception to maturity. Yet, in barely five years, similar progress has been made in Great Britain. The British have been able to profit from our mistakes and gain from our experience.

"The last chapter of the development of the long cane in Great Britain is as yet unwritten. One feels that, in view of the rapid progress and successes of the past few years, long cane mobility will shortly take its rightful place within the sphere of rehabilitation of the blind in Great Britain."

The emphasis is on the long cane, not the development of mobility training programs tailored to fit individual needs. The long cane should and will take its rightful place in rehabilitation of the blind—but that place will not be enhanced by exaggeration and vested interest.

William Goodman
Instructor, Florida State University

Dear Editor:

Robert V. Crouse's article expresses very well the crusading attitude of the "long cane" proponents. It suggests that the long cane is the full and complete answer to the mobility problems of the blind. This attitude ignores the need for and value of any other tools or techniques, such as the collapsible cane, the sighted guide, guide dogs, and sonar aid. My concern is that the long cane has become a fetish and the associated technology a ritual. As a result, the complex dynamic interaction of man, tool and environment that is required in mobility is oversimplified by the emphasis on the long cane, while the simple thing (the cane) is made unnecessarily complicated. This oversell of the long cane tends to give greater emphasis to the cane than to the person.

Another point that deserves comment: The author states, "Many short-stick users have sought a cane method that would give them better protection, freedom from strain, improved posture, and acceptable appearance—in short, independent mobility." The suggestion that all these things can be achieved through the use of the long cane, particularly the all-inclusive

"total independent mobility," is an unwarranted exaggeration and serves only to mislead the inexperienced and to increase the anxiety of any blind person who accepts this as a realistic goal.

My hope is that as the mobility profession matures the emphasis will be placed on evaluation of needs *with* the individual, on guiding the person in the selection of the tool or tools that best meet his needs, and on arranging for or providing the training required.

Carl McCoy, director
Rehabilitation Center
for the Blind
Florida Council for the Blind

Dear Editor:

On page 308 of the December issue of the *New Outlook*, in the article by Boris Zimin, statistics on the number of blind programmers may be found. The sentence states: "At present there are about 70,000 blind programmer-engineers". The only reasonable interpretation that can be made is that there are some 70 to 100 blind programmer-engineers. Seventy thousand programmers is the order of magnitude for *all* the programmers in the world at present. Up to the time of this article I had collected names and addresses of 196 blind programmers in the United States and Canada, 45 in the United Kingdom, nine in Israel, and lesser numbers elsewhere. It is safe to say that the number is nearly 300 outside of Russia.

Robert A. J. Gildea, secretary, American Association for Computing Machinery, Committee on Professional Activities of the Blind

Mr. Gildea is correct. According to A. Astakhov of the All Russia Society for the Blind, the sentence in question should have read as follows: "At present there are about 70 blind programmer engineers in the USSR."

—The Editors

Book Review



Teaching the Retarded Visually Handicapped—Indeed They Are Children, by Donna L. Bluhm. W. B. Saunders Company, London, Philadelphia, Toronto. 127 pp., \$4.50. This book comes at a time when there is a growing demand for new ways of working with retarded blind children, and when teachers of these children complain about the meagerness of literature directed specifically to their needs as educators. It includes chapters on living skills, such as handwork, music, reading readiness, and braille; and on academic subjects, such as mathematics, science, and social studies.

It is fitting that a major portion of the text should be concerned with activities that help the child to develop socially, psycho-socially, and intellectually before he enters an academic program. For many of the children about whom Miss Bluhm is writing are victims both of experiential deprivation and of inappropriate learning opportunities. Such children urgently need to learn more living

skills and to acquire a body of knowledge about the world around them to which they can relate the things they learn in their academic programs.

In the area of living skills, Miss Bluhm discusses grooming, dressing, eating, mobility, and manual dexterity—all important aspects of any child's growth and development, and especially critical in the development of visually handicapped and retarded children.

A chapter full of useful suggestions for adding to the child's knowledge of the world is the one dealing with recreation. It includes games, songs, fingerplays, and other activities which, since they are an integral part of everyone's childhood, are familiar to most teachers. Miss Bluhm lists each activity, with a comment as to its purpose, and gives instructions for carrying out the activity—with or without special adaptation for the child's handicap.

This book should be especially helpful to the inexperienced teacher who, facing a classroom of retarded blind children

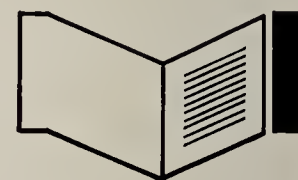
for the first time, may feel inadequate to the task of dealing with their double handicap. For it provides an encouraging autobiographical account of how one teacher has learned to perform this task. The very scope of the material presented leaves the reader with a positive feeling of how much can be done for such children.

From certain points of view, the book does seem to have a few weak points. Some of the techniques that Miss Bluhm recommends seem to have been borrowed from other areas of disability; whether they are applicable to the group of children under discussion is open to question. And experienced teachers may find that the more complex problems of the child's development are too lightly treated.

But the book is not intended to be definitive. It is a supplement to the basic texts on mental retardation, blindness, and child development, and should be approached with discernment as to its real function—that of a handbook.

—Pauline Moor

Current Literature



Blind Children Learn to Read, by Berthold Lowenfeld, Georgie Lee Abel, and Philip H. Hatlen. Charles C. Thomas (301-327 East Lawrence Avenue, Springfield, Illinois 62703), 1969, 185p. \$8.50. This book is based on a study supported by the U. S. Office of Education of the present status of braille reading in local classes and residential schools for blind children. Chapter headings are: Of Braille and

braille; Review of Research on Braille Reading; The Braille Reading Study; Readiness for Learning to Read; The Teacher's Role in the Reading Program; and Special Problems in Braille Reading.

Perceptual-Motor Behavior and Educational Processes, by Bryant J. Cratty. Charles C. Thomas (see address above), 1969, 265p. \$9.50. Contains three chap-

ters relating to the blind. They are: The Development of Perceptual-Motor Abilities in Blind Children and Youth (p. 153-161); Mobility Research at UCLA—A Summary and Implications of the Findings (p. 162-168); and The Educability of Dynamic Spatial Orientations in Blind Children (p. 169-172). In the appendix section is given a Mobility Orientation Test for the Blind (p. 242-255).

—Mary Maie Richardson



■ Oscar Friedenson, director of the New York State Commission for the Blind and Physically Handicapped, has resigned to become community relations director of the Universal Education Company.

John A. Baldwin has succeeded Mr. Friedenson as director. Mr. Baldwin received a B.A. from Hobart College and an M.S.W. from Syracuse University.

He joined the New York State Department of Welfare in 1954 and most recently served as associate welfare consultant to the First Deputy Commissioner.

■ Mrs. Sidney E. Pollack, administrative director of the Jewish Guild for the Blind, New York City died March 18 after a long illness.

Under Mrs. Pollack's leadership, the Guild grew from a small organization devoted primarily to serving Jewish blind persons to a large agency with varied programs for blind persons of all races and creeds.

Mrs. Pollack attended the University of Nebraska, and joined the Jewish Guild as a secretary in 1933. Less than a year later, she became administrative director of the Guild, a position which she was to hold for the rest of her life.

Mrs. Pollack had a strong interest in service to multi-handicapped, emotionally disturbed blind persons. Reflecting this interest, the Jewish Guild came to place a heavy emphasis on programs designed to serve these people.

Recently, Mrs. Pollack was chiefly occupied with planning the construction of the Jewish Guild's new Manhattan headquarters building, which is scheduled for completion in 1970.

■ The Committee on Services to the Deaf-Blind of the World Council for the Welfare of the Blind wishes to learn of any services now available or contemplated

in the future for deaf-blind persons in all countries of the world. They wish to have this information by August 1, 1969. Information or inquiries should be addressed to Dr. Peter J. Salmon, Chairman, Committee on Services to the Deaf-Blind, World Council for the Welfare of the Blind, 57 Willoughby Street, Brooklyn, New York 11201.

■ A placement service for persons seeking employment in physical education and recreation for the handicapped has been established by the American Association for Health, Physical Education, and Recreation.

The service is available to individuals seeking positions and to schools, residential facilities, day care centers, recreation departments, colleges and universities, and volunteer, private, and semi-private agencies seeking specialists in these fields.

Information and forms can be obtained by writing to the Special Placement Service, Project on Recreation and Fitness for the Mentally Retarded, American Association for Health, Physical Education and Recreation, 1201 Sixteenth Street, N.W., Washington, D.C. 20036.

■ About 30 visually handicapped students between the ages of six and 19 will take part in a special project to be conducted June 13-July 26, 1969 at the Virginia School at Hampton, Virginia.

They will receive special training in reading, orientation and mobility, swimming and living skills, language development, art, music, and recreation. The students will be grouped according to age, intelligence, visual impairment, personality, and other factors. Orientation and mobility training will be offered on an individual basis.

The Hampton School has been conducting

projects of this type for the last three summers.

■ Susana E. Crespo has joined the staff of the American Foundation for the Blind as a regional education consultant for Latin America. She will work out of the AFOB regional office in Santiago, Chile.

She has been granted a leave of absence from her position as director of the Instituto Helen Keller in Cordoba, Argentina to accept the two-year assignment with AFOB.

■ Robert J. Acosta, a congenitally blind teacher from Chatsworth, California, has been named to the list of America's 10 outstanding young men, published annually by the United States Junior Chamber of Commerce.

■ Bell & Howell company has added three languages—Japanese, French, and Spanish—to its Talking Dictionary Program. The program already included Russian and German.

The Talking Dictionary Series, designed for use with the company's Language Master Audio-Visual Instruction System, is designed to help students learn pronunciation, spelling, structural patterns, and cultural differences.

■ Harry L. Glickson, director of special services for the Pennsylvania Association for the Blind since 1953, died December 22.

Mr. Glickson, a native of Lithuania, came to the United States in 1904 and had been employed by the Association since 1912.

In 1938, he helped organize the National Industries for the Blind, the agency which now allocates government contracts to workshops for the blind. He received the NIB's Robert B. Irwin Award in 1958.

■ L. Ernest Parmer, newly appointed supervisor of instruction at the Overbrook School for the Blind, Philadelphia, is supervising a revision of Overbrook's high school curriculum.

The object of the revision is to eliminate gaps, reduce overlapping of instruction, and gear the courses more closely to the students' needs.

■ The Committee on Continuing Education of the National Health Council will sponsor nine short courses in 1969.

There will be two courses on executive development, two on the health agency and community health action, two on community organization, and one each on communication, consultation, and planning as a community function.

The courses will be held at universities in various parts of the country. Information can be obtained from the Director, Continuing Education Program, National Health Council, 1740 Broadway, New York, N.Y. 10019.

■ Oraien Catledge has replaced Vernon Metcalfe as the American Association for the Blind's regional consultant for the Southeastern States (Region IV). Prior to his appointment, Mr. Catledge was di-

rector, Division of Community Services, Mississippi Department of Public Welfare.

■ The New York Community Trust, a national foundation management service, has given a \$35,000 grant to the National Society for the Prevention of Blindness to finance the cost of a new film on glaucoma.

■ The International Society for Rehabilitation of the Disabled has changed its name to "Rehabilitation International." The change became effective January 1, 1969.

■ A handbook designed to insure optimum protection for handicapped persons serving in rehabilitation facilities and sheltered workshops has been issued by the Rehabilitation Services Administration. Entitled "Safety Manual for Rehabilitation Facilities," the handbook is accompanied by a checklist. Copies can be ordered from Willman A. Massie, executive secretary, National Policy and Performance Council, Rehabilitation Services Administration, U.S. Department of Health, Education, and Welfare, Washington, D.C. 20201.

Coming Events

May 11-14 National Braille Association, National Conference, Dallas, Texas.

May 25-28 National Conference on Social Welfare, New York, N.Y.

June 18-20 National Association of Hearing and Speech Agencies, Annual Conference, Washington, D.C.

June 22-28 American Library Association, Annual Convention, Atlantic City, N.J.

June 30-July 5 National Education Association, Annual Convention, Philadelphia, Pa.

July 20-23 American Association of Workers for the Blind, Annual Convention, Chicago, Ill.

August 6-9 Blinded Veterans Association, Annual Convention, Philadelphia, Pa.

August 24-29 International Congress of Gerontology, Washington, D.C.

November 20-22 National Society for the Prevention of Blindness, Annual Meeting, New York, N.Y.

December 5-6 National Social Welfare Assembly, New York, N.Y.

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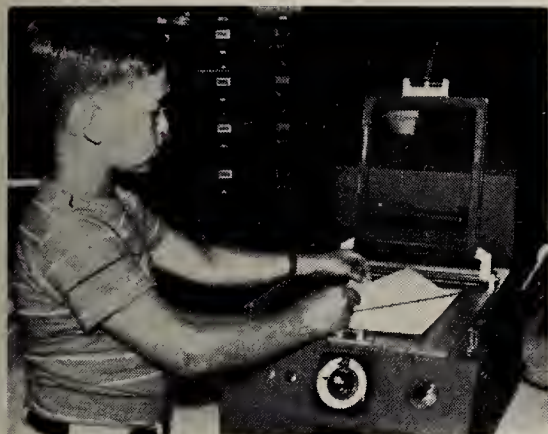
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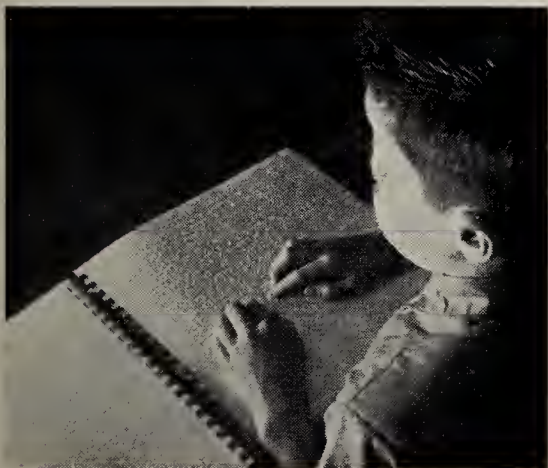


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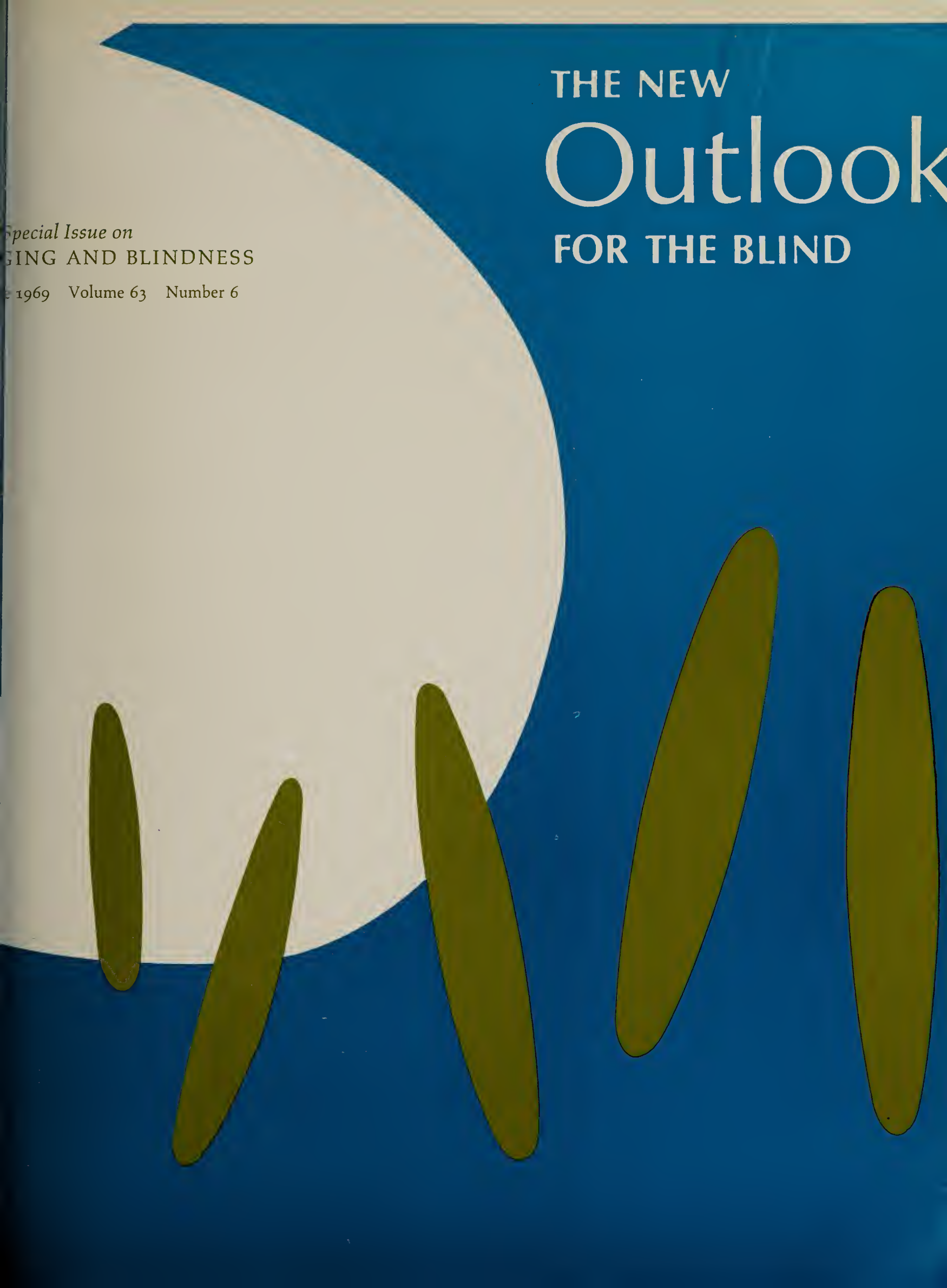
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THE NEW Outlook FOR THE BLIND

Special Issue on
AGING AND BLINDNESS

1969 Volume 63 Number 6



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June 1969 Volume 63 Number 6

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Geriatric Blindness: We Have Recognized the Problem

The social, cultural, and economic changes occurring in the world today are having far-reaching effects on all people. One of these changes—the steady increase in the aging population—has already caused a basic alteration in the fields of medicine and social services. One particular aspect of this increase—the number of aging persons who are blind and severely visually handicapped—has been of great concern to a number of persons and organizations, including the American Foundation for the Blind.

Over the last few years, the Foundation has devoted a great deal of attention to this problem in an attempt not only to define its own role but to provide direction for all agencies concerned with the aging and the aging blind. A concrete result of this study was the establishment of a National Task Force on Geriatric Blindness. The Task Force, which held its first meeting last month, has been charged with assisting the Foundation in answering these questions:

1. What steps are necessary to ensure that aging blind persons will be included in all known programs for older people?
2. What services need to be developed by special agencies serving the blind?

During the past year, the staff of the *New Outlook for the Blind* has, independently of the Task Force, been planning this special issue devoted to the specific problems of aging blindness. Thus, it is only coincidental that the articles chosen reflect so closely the specific concerns of the Task Force. Only coincidental, but encouraging, for it proves that there are persons and groups across the country already beginning to work in the direction of the aims of the Task Force. In other words, one of the biggest hurdles—recognizing the problem—is already behind us.

—Garson E. Meyer
President Emeritus, National Council on Aging, and
Co-chairman, National Task Force on Geriatric Blindness

The Community Aging Project

Introduction:

Geriatric Rehabilitation for the Aging Blind

Many professionals working with the aging blind believe that an elderly blind person will enjoy his later years more if he spends them in an environment where the blind and the sighted mix. A few years ago, staff members of the Industrial Home for the Blind set out to promote a policy of integration based on this philosophy. But they faced two problems: Many homes for the aging are reluctant to accept blind applicants because they cannot give them adequate care. And many homes, though willing to keep residents who lose their sight after admission, do not offer them special services that they need. In 1967, in an attempt to change this situation, IHB established the Community Aging Project. The five papers that follow are a report of progress on the project.—The Editors

The Industrial Home for the Blind's (IHB) Community Aging Project, a three-year demonstration supported in part by the Administration on the Aging, U.S. Department of Health, Education and Welfare, is still in progress. However, the initial findings are so significant that the IHB has been urged to present them publicly without delay.

□ This project is an outgrowth of agency services for the aging blind which have been developed in response to a growing community need. As the IHB has moved away from its original 1893 concept of providing residence-based training, employment, and shelter on a very limited basis toward the concept of providing comprehensive rehabilitation and educational service, concern for the aged blind person has increased to the point where a wide spectrum of services is available to the older blind person, both in the community and in special residences maintained for those with complicating disabilities in addition to advanced age. The Community Aging Project constitutes an extension of these services into new and unexplored areas. It represents a progressive step in an evolutionary process of service to the individual whose visual limitations are accentuated by the general effects of old age.

In accordance with the growing IHB emphasis upon the visually impaired as an integral part of the community, this project focuses on the condition of aged blind persons in nursing homes and homes for the aged. The papers that follow report on the status of the blind in these institutions and suggest important problem areas that call for specialized intervention.

It is our hope that these preliminary findings will provide some guidelines for other communities. Although several other agencies for the blind also are engaged in useful projects concerning the aging they have taken a somewhat different approach than the one taken by this project. All of these projects should yield useful data in an area which has been neglected over the years. The IHB hopes that these preliminary reports will be another building-block in the evaluation of improved services to the aging blind person.

PETER J. SALMON

Dr. Salmon is administrative vice-president, Industrial Home for the Blind.

A Progressive Step in an Evolutionary Process

Focus is on the aged blind in nursing homes and homes for the aged

An Outline of Project Objectives and Procedures

The Community Aging Program of The Industrial Home for the Blind has the following objectives: (1) to identify aging persons living in institutions who are legally blind; (2) to bring services to these persons that will increase their self-reliance and reduce the amount of protective care they will require—because of their blindness—from the institution in which they live; and (3) to utilize Burrwood, the IHB residence for aging blind persons, as a geriatric rehabilitation center to evaluate and prepare blind persons for admission to community homes for the aging.

□ In the first phase of this research and demonstration project to improve services for institutionalized aging blind persons, residents of 36 nursing homes and 20 homes for the aging were vision-screened by four screening teams, each consisting of an optometrist and two recording aides. One aide recorded such data as age, length of time in the home, and eye-health history, on each resident. The other aide recorded the information gained by the optometrist regarding the resident's present functional vision. Since we were interested in identifying those residents in the population with which the project was concerned who were functioning as blind persons, the subjects were vision-screened as we found them. No effort was made, at the time of screening, to estimate how well they might see if they had proper lenses or if eye inflammations or other minor eye conditions were treated. Those residents who were found to be functioning as blind persons were referred for an ophthalmological examination, either to the home ophthalmologist (where there was an ophthalmologist affiliated with the home), or to a project ophthalmologist.

The reports of the ophthalmological examinations were then submitted to the New York State Commission for the Blind and Visually Handicapped for a determination as to whether the subjects should be classified as legally blind. Those residents certified as legally blind became eligible for the services of the second phase of the project—including optometric diagnostic, audiological evaluation, social casework, rehabilitation services in the areas of self-care, communications, mobility in the familiar environment of the institution, and recreational services. Each blind resident is initially interviewed by one of the project's social workers and is referred to those project services for which he has a need and which he wants to use. Referrals are based on information gained from the staff members of the home and from the resident himself.

We have seen dramatic changes in the personalities of institutionalized aging blind persons who have been helped to regain self-reliance and a sense of personal dignity by appropriate rehabilitation services.

M. CONRAD RANGE, JR.

Mr. Range is coordinator of rehabilitation services, Industrial Home for the Blind.

Residents of 56 Homes Were Vision-Screened

Those certified as legally blind were eligible for the second phase

Many of those residents found to be blind had operable cataracts but had failed to request, or actually refused, cataract surgery. Such failure, we found, has frequently been caused by misconceptions and an unfounded fear of eye surgery. We have found that, when given valid information upon which to make a judgment about cataract surgery, a number of those suffering from mature cataracts elect to have the cataracts removed. Some of the residents have already completed the surgery with very satisfactory results. Several residents, after receiving rehabilitation services, have been able to leave their bedrooms by themselves for the first time since they were institutionalized and to socialize with seeing residents of the institutions in which they live. Some have been removed from the infirmary or other places of isolation.

□ Up to now, we have been preoccupied with the first two phases of the project, but we plan to proceed with the third phase in the near future. As a first step, every applicant for admission to Burrwood will be considered a potential candidate for placement in a community home for the aging. Whenever practical, the older blind client will be given some five to six weeks of service at Burrwood preparatory to entrance into a community facility. This service will be rehabilitative in nature and will include training in mobility and self-care. In conjunction with these plans, the homes for the aging that have cooperated with the project will be asked if they will accept Burrwood referrals in their facilities.

As a second step, the geriatric rehabilitation center services at Burrwood will be made available to applicants for admission to these facilities in instances where blindness is an initial deterrent to adjustment to the facility. In this step, homes for the aging will refer applicants who qualify for the services for a five to six-week training program at Burrwood, subsequent to which the individual, whenever feasible, will enter the referring facility.

It is our hope, through the project, to develop such self-reliance among institutionalized aging blind persons who receive proper rehabilitation services as to make it possible for many more aging blind persons to be accepted in institutions for sighted persons.

Many were reluctant to undergo cataract surgery

Aged Blind Will Be Given a Rehabilitation Course before Entering the Home

Social Service Implications of the Community Aging Project

Within the past 40 years there has developed a new and rapidly growing social problem: that of providing adequate care and service for an increasing number of chronically ill, aging individuals in our society. During the same period in which medicine has made incredible advances in the prevention and cure of disease, and in which science has made equally incredible advances in new areas of technology, society has, in many instances, been unable to cope with the problems of daily living that have resulted from these advances. The Community Aging Project represents one attempt to find some new solutions.

□ In the reports which have been given so far on the project there is a feeling of tremendous excitement, both for the Community Aging Project staff and for the institutions involved. It is as though the old, hackneyed sayings of the field had suddenly been given a new shape, dimension, and meaning. Sayings have become happenings and, hopefully, will continue to be happenings in future years.

Let us take a few such sayings and look at them in the light of the project reported here. For instance: "More than 50 percent of all blindness occurs in the age groups over 65." We all know this, and have known it for many years—as a statistic. To translate the statistic, however, by locating and individualizing the needs of hundreds of elderly blind persons whose remaining years will be spent in homes for the aged or in nursing homes, impels one to action.

Another well-known statement: "Almost 50 percent of all blindness is preventable." Prevention of blindness is not new. For a long time we have had a large number of education and prevention programs for many age groups and for many eye diseases. However, when blindness is found to exist because of the lack of simple refraction, or when other blindness could be removed by comparatively low-risk surgery, the old statement about prevention takes on a new meaning, and offers a challenge which cannot be ignored.

A third common phrase in our profession: "There is no such person as a blind man—there is only a man who happens to be blind." But, the Community Aging Project has found many whose functioning was limited if not totally inhibited because, in their setting, they were "blind men."

□ A final phrase is the familiar designation, "Senior Citizen." It could be a title of great dignity and beauty implying the respect and love which should be the normal portion of older persons. Unfortunately, it too often is a title of disrespect and condescension, carrying with it an implicit inter-

ELIZABETH MALONEY

Miss Maloney is director of educational and social services, Industrial Home for the Blind.

Sayings Have Become Happenings

A "blind man" and a "person who happens to be blind"

"Senior Citizen" Is Often a Title of Disrespect

pretation of "Useless Citizen." The goal of the Community Aging Project has been to bestow true "senior citizenship" on those persons in institutions who are blind.

□ Now that we have seen some of the commonplaces of our field in a new light as a result of the Community Aging Project experience, what meanings can we find for our future service to institutionalized blind persons? The Community Aging Project program does not encompass the total community. It does, however, cover a sufficiently wide sample of institutions to be considered representative. It can therefore be assumed that what was found in this sample would be found in most institutions providing nursing or custodial care to aged and ill persons. On this assumption, the preliminary findings of the study raise four major questions:

1. What can be done to prevent blindness from occurring, and increasing the already severe handicaps of older people?
2. If blindness does occur, how can the older blind person be helped to live with dignity and a sense of fulfillment even though he may require institutional care?
3. Where programs of preventive and remedial health care and rehabilitative services are indicated, who is responsible for providing them?
4. If the findings of the Community Aging Project are so dramatic in relation to the handicap of blindness, is it not reasonable to assume that the investigation of other physical and sensory limitations among aging persons would have equally dramatic results?

□ The answers to these four questions cannot come from the Industrial Home for the Blind. They can only come from the geriatric field itself. A few suggestions, however, are immediately obvious. In the medical area, for instance, it is understandable that the existence of visual impairment and the implications of such impairment may seem less important than severe bodily illnesses and handicaps. However, the interrelatedness of all body functions is such that each area of functioning must be seen both in its uniqueness and in its relationship to the whole.

Many of the diseases that are prevalent in the aging population—such as arteriosclerosis, diabetes, and nutritional deficiencies—do affect the eye. It would seem that the minimum standards of care for the aging would require at least an annual ophthalmological examination. However, involved in the planning for many kinds of specialty care is the total question of our judgment regarding the value of the older person in our society. If we see the older person as a unique individual, with the right to enjoy the use of whatever potential may remain to him, no matter how desperately it may be limited, then we will not assume, for instance, that cataract surgery is contraindicated because the patient is bed-bound, arthritic, or partially paralyzed. Rather, in the light of these other handicaps, restoration of usable vision will seem even more important.

Given the suggested standard of medical care, there are other factors which may stand in the way of remediation. The greatest single obstacle is

Questions Raised By the Study

Answers Must Come from the Field of Geriatrics

How do we judge the value of the older person in our society?

fear—fear of hospitals, fear of total blindness if surgery is not successful, belief in false ideas about what is involved in remedial surgery, belief in old wives' tales left over from an earlier generation, or fear of losing a place in a nursing home. We know, too, that in the older person whose environment has become constricted, small concerns become magnified almost to the point of obsession. For this group of persons, social work counseling has much to offer. It helps the patient express the fears and worries that stand in the way of action. It gives simple information in such a way that it becomes incorporated into the feelings of the patient and it offers a warm, lasting relationship which enables the older person to become more calm, to express and resolve doubts, and to feel able to make decisions.

Within the framework of the Community Aging Project the project staff has provided many of these specialized services to institutions for the aging on a demonstration basis. They have received a warm welcome and real gratitude for their efforts in staff training and orientation. Here one sees the future role of the institution administrator as one of seeking out the specialized agency service as a means of enriching the competence of his staff in many areas involving sensory handicaps. Beyond this, however, the administrator, the nurse, the recreation worker, the aides—each of whom contributes to the patient's security and to his feeling of importance—should work to establish a total climate of help and encouragement.

Thus, the future pattern of service sees the older person with a visual handicap receiving service from the entire team of specialists, a team established within the institution itself. This can be augmented by representatives from community agencies like the Industrial Home for the Blind. But the team will originate within the institution, and respond to its special characteristics.

□ A program like the Community Aging Project can have an ever-widening influence on service to patients. More awareness of the blind patient as a person of importance leads to the same recognition for other patients, and therefore to a higher level of service for all patients. Unquestionably, improved service is the goal of the majority of the institutions served by the Community Aging Project. In its two years of work, this project has only scratched the surface of the services which can be brought to blind persons to make their old age productive and happy.

From the specialty of geriatrics have come some of the most exciting community programs of the past 20 years. The Golden Age centers, the hobby shows, Volunteer Grandparents, are just a few of the evidences of the creative knowledge and spirit prevailing in this field. The challenge now is to extend this knowledge to the vast number of blind and disabled older people in our nursing homes and institutions.

The project staff has been gratefully welcomed

Better Service for Blind Patients Leads to Better Service for All

A Study of the Incidence of Blindness in Homes for the Aged and Nursing Homes

The reviews of literature which were conducted in conjunction with the Community Aging Project of The Industrial Home for the Blind revealed an absence of "hard" data on the incidence of blindness in nursing homes and homes for the aged. Interviews with the directors of such institutions indicated an almost universal belief that only a minor proportion of their resident populations had serious visual impairments and that blindness did not constitute a significant problem, either for the residents or for the homes that served them. Most institutional staffs were aware of a few individuals in their care who had been certified as legally blind by the New York State Commission for the Blind and Visually Handicapped on the basis of eye examination data. However, as a group, the institutional administrators and physicians consulted by the project perceived blindness as a minor problem requiring few, if any, special services in their homes.

□ Although nursing homes in the Metropolitan New York area usually admit chronically ill patients who also have serious visual impairments, relatively few homes for the aged knowingly do so. But despite this exclusionary policy, these same homes for the aged have no hesitation in serving those who, after being admitted as sighted persons, become blind in the course of their residence at the institutions. Service to the blind on this basis apparently has had no influence on the policy of excluding those who have serious visual impairments at the time of admission. Among the arguments offered by the institutions for this incongruous policy were: (1) Other community agencies have responsibility for blind persons who need protective services; (2) the homes for the aged have a special obligation to those who lose their sight while under the care of these homes; and (3) most homes for the aged are unable to cope with large groups of blind residents.

The IHB Community Aging Project is still generating extensive biostatic and psychosocial data about institutionalized older blind persons. However, the findings concerning the vision screening and ophthalmological aspects of the project are virtually complete and are available for dissemination. These findings have great potential significance for the care of institutionalized older blind persons at both agencies for the blind and institutions for the aging. Among other things, these data constitute the first recorded large-scale multi-institutional attempt to assess the visual functioning of aged persons in homes for the aged and nursing homes and, in some cases, to implement the findings in terms of service. Throughout these vision-screening procedures, the individual was considered to have "failed" if his visual acuity was 20/200 or less in the better eye with correcting lenses, or if he had

HERBERT RUSALEM

*Dr. Rusalem is research consultant,
Industrial Home for the Blind.*

Why Nursing Homes Will Not Admit the Visually Handicapped

*Vision-screening and ophthalmological
data are virtually complete*

visual acuity greater than 20/200 but with a limitation in the fields of vision such that the widest diameter of the visual fields subtended an angle no greater than 200.

At the time of data processing, 6,244 residents came under consideration for possible screening. However, 868 of these residents were not screened. Six hundred forty-five of them were unable to participate in the screening procedures because of senility and complicating disabilities. The other 223 unscreened individuals were suffering from severe illness, were absent from the facility at the time of screening, were unwilling to participate, or were already known to be blind, either on the basis of IHB case records or materials on file at the institution. Thus, 5,376 individuals residing in 56 institutions (36 nursing homes and 20 homes for the aging) participated in the project's vision screening procedures. The median age of the group was 82 years.

An examination of institutional records, and interviews conducted with the residents at time of screening, produced data about selected characteristics of the screened group. Many of these data came from recollections of the residents and, in most cases, were not subject to independent confirmation. Consequently, it would be prudent to regard the findings concerning these characteristics as indicative rather than definitive. They can be useful in suggesting trends rather than in representing specific facts.

Forty-two percent of the 5,376 persons screened could not recall the date of their most recent vision measurement. An additional three percent claimed that they had never had their vision checked. The large majority of the remaining 55 percent reported that their vision had last been assessed two years or more prior to project screening. About one-third of these reporting individuals indicated that their examination dated back five years or more. Some had not had a vision evaluation for more than 30 years.

A total of 5,274 of the 5,376 individuals screened provided data on their use of eyeglasses. Thirty-seven percent of this group indicated that they did not wear spectacles under any circumstances. Among those who did wear glasses, (full- or part-time), 18 were using lenses that had been prescribed for another resident but which they had adopted for their own use without professional consultation. Thirty-nine percent of the 2,971 eyeglass-wearers who could recall that their glasses had been prescribed reported that they had had their present glasses for five or more years. More than two-thirds of the eyeglass-wearers had not had their vision checked since their present glasses had been fitted. Six hundred thirty-three (12 percent) of the screened group reported having undergone eye surgery at some point in their lives. Seventy-five percent of the operations reported were for cataracts. Most of the remaining surgery was for complications resulting from glaucoma. A few additional individuals reported that surgery had been recommended prior to project screening and that the matter was still under consideration.

□ Nineteen percent of the 5,376 individuals screened failed the screening procedures and were presumed blind. Fifteen percent failed on the basis of acuity alone, one percent on the basis of visual fields alone, and the rest on

Data derived from records and interviews

Nineteen Percent Were Presumed Blind

the basis of both acuity and fields. In addition, inconclusive results were obtained on seven percent of those screened. Many of these inconclusive findings result from difficulties in evaluating the fields in this sample. Alerted to the visual fields problem by the screening data, ophthalmologists subsequently confirmed blindness in 35 percent of the screening inconclusives. Without being cued in by the screening data, some of these physicians would have bypassed tests of the visual fields and overlooked instances of serious visual loss.

□ This experience suggests the vital role of routine field examinations in this age group, where glaucoma and other conditions affecting the visual fields may result in significant reductions in visual efficiency. A combination of the screening failures and the subsequently confirmed incidence of blindness in the inconclusive group indicates that 21 percent of the total sample screened were presumed by the screening team to be blind. Eighty-four percent of the failures and 35 percent of the inconclusives were later confirmed to be blind by ophthalmological examination and state agency classification.

More than one-fourth of the members of the screened group lacked sufficient close vision to read 24-point type. Nine percent could read 24-point type or larger and 10 percent could read 18-point type or larger, indicating the possible value of large-type reading materials for the members of this group. Forty-one percent of the group could read 10-point type or larger, giving them potential access to most printed matter.

Wherever possible, individuals who had failed the screening tests or had produced inconclusive screening results were scheduled for subsequent ophthalmological examinations. Only 16 percent of those who failed the screening were reported by the ophthalmologists to be above the upper limits of blindness. This 16 percent is not indicative of a low reliability for the screening procedures. On the contrary, some cases were failed by the team even though there were substantial doubts. This was done, in part, to make the person eligible for an ophthalmological examination and to obtain clarification of equivocal findings. Furthermore, the ophthalmologists tended to make their judgments on the basis of clinical findings obtained while the individual was being corrected with the "best" trial lenses in the office, whereas the screeners made their judgments on the basis of the lenses actually being worn—a measure of current rather than optimum level of functioning.

Although a large majority of those needing ophthalmological examinations on the basis of screening received such examinations in conjunction with project procedures, some did not. Two institutions with 491 screened residents neither provided the ophthalmological examinations themselves nor permitted the project ophthalmologists to offer this service. An additional 316 screened individuals did not receive examinations because they were residing at institutions which had not yet completed the scheduled ophthalmologicals at time of data processing. Three hundred-sixteen other individuals who had been screened could not be examined by the ophthalmologists

Field Examinations Are Vital

Those who failed screening test were given ophthalmological examinations

owing to death, illness, departure from the institution, senility, or unwillingness to participate in the medical procedures. In summary, 17 percent of the residents who had been screened and had had opportunities for ophthalmological examinations and subsequent classification procedures were found to be blind. If this percentage is valid for other communities, it may be generalized that about one of every six residents in homes for the aged and nursing homes is likely to fall within the commonly accepted definition of blindness.

□ Although the data on the history of the eye disorder are subject to the vagaries of the respondents' recollections, about one-fourth of the members of the group classified as blind by the state agency on the basis of project data reported that they had had the eye condition for more than ten years. Although well over one-third of the blind group had field restrictions, the exact incidence of this visual limitation cannot be presented because not all ophthalmologists take field readings with older patients. The failure to do so is related to the difficulty of conducting field tests with this age group, the practitioners' belief that field tests are unnecessary with the aged, and the termination of further examinations as soon as visual activity tests alone reveal the presence of blindness. The major causes of blindness in the project group classified as blind were: cataracts, senile macular degeneration, glaucoma, optic atrophy, and diabetic retinopathy.

□ Specific data on the psychological and medical aspects of the study will be presented in subsequent reports dealing with the social characteristics of the blind group, their responsiveness to recommended surgery and other forms of restoration, audiological and otological assessments, benefits achieved from rehabilitation and recreation services, and the impact of the program upon the service procedures in some nursing homes and homes for the aged. At this time, however, certain significant non-statistical observations can be presented to provide a framework for evaluating the significance of vision measurement data presented above:

1. A large majority of the 730 institutionalized persons identified as blind by the project previously had been unrecognized as such at their respective institutions. This was due, in part, to the tendency of institutional staffs to regard a person with some residual vision as a sighted individual. Consequently, the institution, the family, and the peers of the partially sighted older blind person maintain unreal expectations for him, generating stress, frustration, physical and emotional maladjustment, and guilt at not conforming to the behavioral standards set for him. Such expectations not only exact a toll in terms of mental health but also expose the visually impaired older person to actual physical danger, since he is required to function without the tools and training needed for safe daily living in the institutional environment. By contrast, the totally blind resident is readily recognized; but he tends to be treated as a helpless infirm case despite reasonably good health.

2. The incidence of visual loss among residents of nursing homes and homes for the aged was found to be grossly underestimated by these insti-

**About One Fourth Had Had Eye
Conditions for More Than Ten Years**

A Framework for Evaluating the Data

*Blindness in residents was usually
unrecognized*

*Incidence of visual loss was grossly
underestimated*

tutions. Almost without exception, their assessments of the number of blind residents fell far short of the actual project findings.

In some instances, institutional estimates showed a mere handful of blind persons, when in fact subsequent project procedures uncovered 40, 50, or more blind persons in residence. Some of these miscalculations resulted from inadequate institutional medical programs. But some institutions with reputedly high-level general medical programs employed qualified health care personnel who regularly neglected, overlooked, and failed to report on, the level of the residents' visual functioning. Indeed, some of the medical examination procedures used routinely at these homes did not include adequate vision assessments. Even in those instances where indicative visual findings were reported, provisions were not always made for needed surgery, lenses, or other treatment. On occasion, there seemed to be an underlying attitude that it was not really necessary for older persons to have their residual vision maximized.

3. Although project studies of the social consequences of blindness in institutions for the aging still are in progress, it may be reported that the recognized blind resident is usually treated as a highly dependent and incompetent individual. Innumerable cases were reported in which residents were confined to their rooms, or even to their beds, despite the fact that blindness was their only major physical limitation. In some instances, this approach was more convenient for the staff; in others it typified the stereotypes of blindness maintained by uninformed or biased personnel.

Blind residents were usually treated as incompetent

4. A variety of barriers prevented the blind residents in some of the institutions studied from obtaining needed vision-rehabilitation services. An example of a bureaucratic deterrent was found among nursing home patients on welfare who faced the peril of displacement upon absenting themselves from the institution for more than a few days, even if the reason was for medical or surgical treatment. In some cases, public welfare agencies pay fees for nursing home beds only if these beds are almost continually occupied. Support may be withdrawn if hospitalization results in the patient's bed being vacated for more than a day or two. When Welfare withdraws, the institution almost invariably admits another patient to the vacant bed. Thus, subsequent to hospital treatment, when the patient is ready to return to the nursing home, he may not find a place waiting for him. These risks may be especially serious for the patient who, having no other place to go, considers the institution his home and fears to lose his place in it. Confronted by these conditions, some blind persons needing surgery declined it for fear of losing their institutional affiliations. Another barrier is the attitude of certain institutional medical staffs which are disinclined to suggest surgery for older persons even if vision restoration is a clear possibility. Overly cautious, unwilling to "rock the boat," or uninterested in patients as persons, they deny the aged individual the opportunity to enjoy additional years of functional vision. Beyond bureaucratic and institutional barriers to vision rehabilitation, some aged blind persons had great anxiety about impending surgery and refused to face an operation. Not infrequently, professional casework

Why blind residents were prevented from obtaining vision rehabilitation

help was useful in such cases in assisting these individuals to consider the alternatives and to make appropriate decisions.

5. Vision care was inaccessible in some situations because institutional personnel failed to realize that improved vision can be highly important for an older person. Beyond the obvious advantages of enhanced safety, independence, and satisfaction, the restoration of vision can enable an aging person to function at higher social and personal levels. Case materials gathered by the project social workers and rehabilitation specialists repeatedly indicated that dramatic psycho-social changes can occur when an older person's visual acuity is enhanced. Among these changes were reversal of social disengagement, improvement in motivation for independent living, more gratifying social and family relationships, and broadened avocational interests. In a few cases, the personality changes associated with vision restoration were so dramatic that they were well beyond reasonable expectations. With the aid of better vision and/or supportive assistance, many blind persons served in this project were able to use institutional resources more effectively and to derive much greater gratification from daily living activities.

Failure to realize the importance of improved vision

6. With few exceptions, there was a bedrock of professional interest in the project among staff members of the cooperating nursing homes and homes for the aged. Only a small proportion of the institutions which were invited to participate declined to do so. Where such resistance was encountered, it usually had its roots in the medical rather than the administrative sector of the institution. In the overwhelming majority of cases, however, the project found not only acceptance but a real concern for the residents and a readiness to work with the project staff even when it became inconvenient to do so. In time, some of the institutions which originally had declined to participate or were slow to accept project procedures reversed their attitudes and initiated requests for cooperative programs. After only two years of project service, some of the cooperating institutions had become so closely identified with the demonstration, and so appreciative of its value for their patients, that they introduced modifications in their own services based upon the cooperative experience and even embarked on experimental rehabilitation and recreation activities of their own. At this writing, institutional awareness of blindness and sophistication concerning means of coping with it in homes for the aged and nursing homes have never been higher in this community.

A bedrock of professional interest

7. The impact of the project experience on the IHB is also worthy of note. This agency embarked on project activities without being certain of their implications for the organization in general. It is now clear to the IHB that cooperative arrangements developed with community institutions for the aged can result in improved physical and psycho-social functioning for many blind individuals. It has been demonstrated as well that inter-agency programming for the blind in an integrated institutional setting is not only possible but desirable. Notable among the advantages of such cooperation is the fact that large segments of the institutional community who had been unaware of the potentialities of blind persons have become increasingly

The project's impact on IHB

knowledgeable about, and skillful in, the means of serving them. Beyond this, the project experience has enabled the IHB to develop new procedures for delivering services to the blind in this community without diminishing institutional participation. On the contrary, institutional interest and responsibility have actually increased. Finally, the project has made the IHB staff increasingly aware of the rehabilitation potential of institutionalized older blind persons and the techniques which can help such individuals to derive the maximum benefit from institutional living.

□ 1. The incidence of blindness in homes for the aged and nursing homes is far greater than previously supposed.

2. Unless the blind resident is recognized early, suitable prevention and treatment will be delayed unnecessarily, at great cost to the individual, the family, and the institution. If the delay is prolonged, the resultant physical and psychosocial losses can become irreversible.

3. Currently used medical procedures at many institutions for the aged fail to identify important segments of the blind populations.

4. The barriers to early identification and treatment are frequently intra-institutional and are compounded of such elements as lack of information about screening procedures, negative attitudes toward vision restoration for older blind persons, staff apathy, medical indifference to vision problems, and lack of cooperative arrangements with local agencies for the blind.

5. Many institutions for the aged have sufficient medical and non-medical resources to serve blind persons more effectively, with supportive assistance from specialized agencies for the blind. Despite this fact, some institutions, having layer upon layer of resistance to such service, continue to neglect the needs of their blind residents. When an institution cannot organize itself to discharge its responsibilities in this area, government and other external agencies may have to impose extra-institutional vision screening, examination, treatment, and rehabilitation requirements on it.

6. Although each component in a vision program for aging residents—screening team, social workers, ophthalmologists, administrators, rehabilitation personnel, and recreation specialists—makes a vital contribution, the physical and psychosocial problems of blindness in old age are so complex that inter-disciplinary teamwork is a virtual necessity. The ideal team is one which blends the staff of the agency for the blind with that of the institution into a coherent and co-ordinated service entity.

7. The benefits of an inter-agency cooperative effort of this type spread far beyond the immediate program for the blind resident. In repeated instances, as a result of their interaction with the IHB Community Aging Project, institutions became more sensitive to residents in general, and improved their programs for aged sighted persons accordingly.

Conclusions

Vision Rehabilitation for Aged Blind Persons

In the last half century, the average life span of the United States citizen has increased by about 20 years. However, the deterioration of human tissues which accompanies aging has not been arrested to any material degree. As more people live to be old, more people may live to become blind—or at least to suffer a decrease in vision sufficient to be a substantial handicap in the ordinary activities of life.

On the credit side, however, is the fact that new developments in medical science, as well as increased provisions for eye-care and for early detection and control of eye disabilities, have resulted in a large proportion of persons who, though classified as "legally blind," retain some fragment of useful vision. This is particularly true in the upper age groups, and is one of the factors to be considered in the current nation-wide movement for the welfare of the aged.

□ For these groups, the virtual revolution in vision rehabilitation which has taken place in the last 15 years would appear to be of prime importance. The purpose of this paper is to explore the extent to which this is true, and to discover how far it is possible to mitigate loss of vision in the aging population through the use of optometric techniques and devices, and to identify some of the special problems encountered in vision rehabilitation of the aged.

Let me begin by defining some terms and briefly tracing the progress of the movement which I have referred to as a "revolution."

As recently as 1950, a blind person with residual vision could improve his sight only through surgery. In many cases surgery was ineffective or contraindicated and the patient was told that nothing more could be done to help him. In 1953, however, another road to improved sight was opened—a road which has not only brought visual improvement to thousands of visually-impaired people, but has also led to a new concept which is gaining more and more acceptance.

Using tools that already exist, we can work toward a goal of maximizing the use of residual vision for every partially-sighted person who can benefit from our procedures. The principle is to enlarge the image by means of optical aids so that it will appear closer, and therefore easier to see. These optical aids may include any device which contributes to the more functional use of residual vision and for any purpose whatsoever. Without getting too technical, such aids may include telescopic spectacles for distance vision, microscopic lenses for near vision, absorptive lenses and sunglasses to reduce glare, and (more often than not) just simple spectacle corrections and hand magnifiers.

Low vision is vision so impaired that the individual cannot perform those daily tasks at home and at work for which sight is essential. Within this group of low-vision persons, there are various gradations.

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How Can the Revolution in Vision Rehabilitation Help the Aging Blind?

Using visual aids to enlarge the image

The definition of legal blindness commonly used throughout the United States is "visual acuity no greater than 20/200 (SNELLEN) in the better eye with best correction or visual acuity greater than 20/200 but accompanied by a limitation in the field of vision to 20 degrees."

However, the term "low vision" is not restricted to this group, but includes all those with visual acuity between 20/200 and 20/70. In fact, one may say that it includes everyone with vision below 20/20; and if, as indicated previously, the individual cannot perform his ordinary daily tasks and activities at home or at work, he is also visually limited.

□ Not more than 25 percent of those who are classified as "legally blind" are totally without sight. The remaining 75 percent have some residual vision, ranging from light perception to the upper limit of legal blindness. The most recent estimates indicate that there are probably 400,000 legally blind persons in this country. Of these 300,000 have some residual vision and should have the opportunity to discover whether they can be helped by low vision service.

Our experience over 15 years at The Industrial Home for the Blind Institute of Rehabilitation shows that more than two-thirds of those evaluated for optical aids were helped. This would indicate that 200,000 legally blind persons can have their visual functioning improved by this means. Consider also that the annual increment of newly-blinded persons is estimated at 10 percent of the blind population. This means that another 200,000 are added each year to the caseload of legally blind persons who may be helped by this service.

Formerly, the practice was to treat all individuals classified as "blind" as though they were totally blind. This practice discouraged them from using such vision as they might have, and encouraged them to depend exclusively or almost exclusively on their other senses of touch and hearing.

Now, in the light of the accomplishments which have proved possible through the use of optical aids, we are urging each blind individual with residual vision to develop and use that vision to the greatest possible degree. We recognize that, to those with severe visual impairment, even a little gain in visual efficiency can be invaluable, although to the person with normal vision this gain would seem so slight as to be of no importance.

Vision rehabilitation is a broad concept, embracing not only the improvement of measurable visual acuity but also the improvement of visual functioning. The visual acuity as measured by the SNELLEN chart is of far less importance than the actual use the individual makes of his vision.

□ When psychological and emotional stability have been regained to the point that the individual begins to want to return to normal living, then the rehabilitation process can be initiated. Vision rehabilitation can provide one of the most important phases of the process. The modern concept of rehabilitation is to build on the ability—not on the disability.

How is vision rehabilitation affected when services are provided to persons in the upper age group? We learned early in the game not to place an arbitrary age limit regarding eligibility of visually-impaired persons for low vision service. Recently a 93-year-old woman—completely alert—was quite specific about her aim in coming to us for service. Because arthritis limited her

Most of the "Legally Blind" Have Some Vision

The partially sighted are encouraged to use residual vision

Rehabilitation Begins When the Individual Is Emotionally Ready for It

mobility she was particularly interested in being able to read her favorite newspaper and, if possible, in getting a little help for sewing and television. With new optical aids, she was able to read the newspaper and, with a new distance correction, she found that watching television was made more enjoyable. Many visually-impaired persons in institutions could benefit similarly.

Usually the significant factor is motivation. The patient should have a vital interest in life's activities and want to enjoy them. Unfortunately, this is not always the case.

□ Many aging persons in institutions accept their growing physical limitations as an inescapable part of old age and allow themselves to be partially immobilized without putting up a struggle. They accept the gradual impairment of vision as part of the natural fate of old people and gradually give up activities for which effective vision is necessary. We must first discover their chief need and try to find out what use they might like to make of their remaining sight if they could see—not in terms of books to be read or *petit-point* covers to be made, but in terms of the simple practical tasks which are within the limited energy of the older person—such as a son's or daughter's letter to be read, a check to be signed, or a button to be sewed on a garment. Hopefully, when confronted with such simple tasks they will overcome their lethargy and strive to regain their independence—at least in this respect.

Another problem to be overcome in vision rehabilitation of older people is, as mentioned previously, the indoctrination to which they have been subject all their lives—i.e., that one must "save" one's eyes by using them as little as possible. This fallacy was popular 40 years ago and, although it has happily been disproved, many older people still cling to it in spite of assurances that their eyes could never be damaged by the proper use of them. Such patients sometimes cannot be persuaded to accept special lenses even when there is every indication that such lenses would be helpful.

In examining and prescribing for the older persons, certain modifications of technique are essential. It is necessary to proceed with even greater deliberation than in the case of the younger patient. The attention span is likely to be more limited and the patient becomes tired more quickly.

The older patient is more suspicious, and less willing to accept the statements of the examiner—especially if, as previously noted, such statements contravene his long-cherished opinions. We must also reckon with the possibility of senility, with its characteristic forgetfulness and confusion.

□ In short, the older patient presents special problems in vision rehabilitation—among them, lack of motivation, too much resignation to the limitations of old age, disbelief in the desirability of using the eyes, decreased attention span, limited energy, and in some instances a mild mental confusion. But with appropriate adaptations of procedure to meet these problems, and with patience and encouragement on the part of the examiner, many aged people can be helped to greater independence and satisfaction in the daily activities of life.

To see again—even to a limited extent—after years of frustration, dependency and even helplessness in certain situations, is to live again. And only as the aged live can we feel that to extend their span of existence is worthwhile.

Many Accept Visual Impairment as Inescapable

The eyes are not damaged by being used

The Older Person Presents Special Problems

Aging and Blindness

No more appropriate introduction could have been conceived for this paper than the editorial note in the June, 1968 issue of the *New Outlook for the Blind*.¹ It was a call to action on behalf of the aged blind. It pointed out that, no matter how you define blindness, more than half of our visually handicapped people are over 65, while at the same time there has been proportionately little accomplished by word or deed in their behalf. This paper, while presenting some basic factual material, will seek to develop a framework and a philosophy through which a program of action on behalf of aged blind persons can be developed.

□ In order to limit the scope of the presentation and to keep it focused on the client as we should see him in our specialized setting, let us begin by making three most wishful assumptions:

1. Let us assume that all the aged blind who need and can benefit from our services know about them and are turning to us for help.
2. Let us assume that our clients do not have to worry about meeting their basic needs for income, medical care, and housing.
3. Let us assume that our agencies have no basic priority problem and that there is enough money, staff, and time to provide all the necessary services our aged blind persons could want and need.

Having thus handily brushed under the carpet some of the most vexing and seemingly ineluctable problems of this field, we can now look in more detail at the individual who turns to us for assistance. We discover quickly that the aged and the blind have a great deal in common. Let us just consider the name. How many ways do people find to avoid using the word "blind?" By the same token, "elderly" is more acceptable than "old;" "aging" is to be preferred over "aged;" Older American, Older Adult, Golden Ager, Senior Citizen—all have their advocates in the court of denial.

The basis of this commonality is that both the aged and the blind are members of minority group to which our society attaches a negative connotation. The negative connotation results from the fact that both groups are likely to sustain losses which interfere with their obtaining or holding onto those things in life that give status in our society. We know how this works in relation to blind persons. It is most similar with the aged. They are likely to sustain losses in the area of physical health, mental alacrity, income, work, organizational associations, and family and friendship patterns. As with

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Three Wishful Assumptions

Both the aged and the blind are minorities

blindness, these changes can lead to dependence, isolation, withdrawal, lowering of self-esteem and a pervasive feeling of uselessness. We can readily appreciate how devastating it is for an older person who is experiencing and trying to surmount the obstacles that come with aging, now in addition to be faced with the problems associated with blindness.

There is, of course, a major difference. The losses caused by blindness, particularly for those who are totally or almost totally blind, are experienced all at one time. By contrast, the phenomena associated with aging are more likely to come, if they come at all, over a period of years. While we all know people who have lost their job, their spouse, and their health, all within a few short months, the more typical history shows these and other changes extending over a period of years. And for some—the lucky ones—they never come at all.

This brings us to another common denominator—the tendency to lump people together in a group. Of necessity, we talk about “the blind” and about “the aged.” Yet we know that each person must be considered as an individual. In the case of the aged, we are dealing with four decades of life, and even seen as a group, those in their 60’s certainly have different needs and characteristics than those in their 80’s and 90’s. More importantly, as Ollie Randall expressed it,

“Each of us ages at different rates, and each part of us also ages at a different rate, with the result that every older person in his own being is the sum total of a number of ages.”²

□ Thus, we see that neither age nor blindness per se are the factors that determine a person’s capacity for growth and rehabilitation. Rather, and we know this, we must look at each person separately—his strengths and limitations, his interests and style of life. The important factors are the presence of other physical handicaps, the degree of mental alertness and motivation, and generally the person’s life experiences and attitudes toward himself as someone both old and blind. It is certainly possible, under the right circumstances, for a person to make a successful adjustment to both aging and blindness regardless of whether the blindness comes early or late in the period of retirement.

Even though we know all this, stereotypes persist and individuals are judged by them. We pride ourselves on being able to see through the blindness to the real person. But what about the aged? How many of us still feel that old age is depressing? That you cannot teach an old dog new tricks? That older people have little capacity to adapt and change? That deterioration is an inevitable concomitant of old age? That those older people who live isolated lives have lost their normal drives and desires and are therefore of necessity dependent and unproductive?³ As long as we judge our aged blind persons on the basis of these outmoded and invalid stereotypes, little will be accomplished in their behalf.

I have purposely dwelt at length on some of the shared attributes of blindness and aging. It seems that a worker who is well oriented to the

We Must Look at Each Person Separately

“Old age is depressing”

rehabilitation of blind persons should find it easy to gain the understanding of the aged blind and to acquire the knowledge necessary to render effective service.

□ But, knowledge, though essential, is not sufficient in and of itself. We need to develop a philosophy which will give the worker, be he paid or volunteer, a genuine feeling of satisfaction in helping an older person. Given a choice, most people today prefer to work with children and young families. There is real satisfaction in shaping the life of a child, in knowing that through one's efforts the happiness of a whole generation can be affected. But what satisfaction is there in helping an older person, whose life is near an end and whose circle of influence, if any, is most limited?

Perhaps because so much of my professional career has been spent in working with the aged, I have always felt that even the person who has but one hour to live deserves and has a right to live that hour with a maximum of dignity, satisfaction, and a sense of the worthwhileness of life. To know that it was something I did that made it so for any person, has been, for me, a most adequate reward. Is the older person who has spent his life working, raising a family, and making his contribution to the general well-being of our country and society any less worthy of receiving the very best than the young child just setting out on life's journey? I, for one, would not want to make such a judgment. Fortunately, we live in a country where such a choice does not have to be made, where potentially, at least, there are resources aplenty to meet the needs of all our children as well as our aged.

But what is even more significant for our time, is that we are seldom talking about just one hour. The life expectancy of the average man at the age of 65 is 13 years. His wife, who at that time is likely to be slightly younger, has a life expectancy of almost 20 years. Even at the age of 75, the average life-expectancy for a man is eight years; at 85 it is still over four years.⁴ Coupling this with an ever earlier retirement age, we are quickly approaching a time when it will not be unusual for a person to spend 25 to 30 years in retirement. While blindness, with its relationship to other chronic and life-shortening diseases, may reduce these average expectancy figures, the basic fact remains the same—the period of old age and retirement is steadily increasing. Warren Bledsoe once said: "To the newly blinded who have not mastered their blindness, time is a large ocean of consciousness without substantial footing."⁵ The problem of adjusting to old age is essentially one of what to do with one's time and how to do it. Surely the professional worker can take a very genuine satisfaction from helping older persons grow in their mastery of blindness, and through this the successful mastery of time, time measured, more often than not, in years and years of continued living.

What services, then, can we render to the older blind person? Generally, the same services we render to blind persons of any age, though naturally the emphasis will not be on vocational rehabilitation in the narrow sense of that word. If we are to seek a special focus, we might find it in the report of a research project described by Florine Livson.⁶ She sought an answer to the

Knowledge Alone Is Not Enough

A person with one hour to live has a right to live that hour well

Characteristics of successful adjustment to aging

question: What do people who feel they have made a successful adjustment to aging have in common? She found that they are far more likely to be socially active, to be visiting friends, to have formed or retained closer and warmer friendships. They are more likely to have productive hobbies, to have preserved a sense of purpose, and to have a higher rate of interests shared with others.

□ Thus, a general rule might be to concentrate our services in those areas that will help promote the retention and development of these factors. But when you come right down to it, are these not some of the fundamental goals of rehabilitation in general? The Talking Book, friendly visiting, orientation and mobility, case and group work, low-vision aids, communications skills, and all the various aspects and tools of daily living seek basically to keep blind persons related purposefully to those about them. We must merely be convinced that it is possible for a particular older person to learn and we must be willing to invest the time needed to make the learning successful.

As Gorham Lane points out:

"Motivational factors are important in all learning, but I suspect that the major reason for the older person's apparent lower skill in learning is the dominance of old, strongly reinforced habits. From the point of view of application, it would seem that whenever new learning is required for the older person, considerable time and emphasis should be allotted to the formulation of positive attitudes toward new learning and to the unlearning of old habits."⁷

The older person must clearly see the need for learning in terms of his own life, must see the goal of the learning as being attainable within a reasonable time, and must overcome the fear of failure. Older people are often afraid to try new things just because of this. It is, therefore, important to break the learning down into sufficiently small steps so that this fear can be overcome through successful accomplishments. Indeed, as you well know, "The successful accomplishment of some feat which the patient originally felt impossible for the blind may make a marked improvement in his spirit."⁸ Just as one kiss leads to another kiss, so can one success in learning lead to continued successes on the part of any blind person, including the aged.

One more factor in the learning ability of older persons needs to be given special attention. We must differentiate between emotional or intellectual losses as opposed to organic losses resulting from brain damage. The organic losses given the name senile degeneration or cerebral arteriosclerosis manifest themselves essentially through difficulty in understanding and loss of memory, particularly for recent events. For the older person who is depressed and withdrawn, rehabilitation is possible provided that there is no organic brain damage. On the other hand, where there is brain damage treatment may indeed be limited.⁹ Blindness added to aging may at times dispose toward organic damage. In view of this, it would be helpful for agencies to retain the consultant services of a psychiatrist with an interest in aging to help make the diagnosis regarding the presence or absence of brain damage and to give advice on the rehabilitation effort.

We Must Be Convinced that an Older Person Can Learn

We must differentiate between psychological and organic losses

It is hard to conceive of anyone disagreeing too violently with anything that has been said so far. After all, to be for the aged is like being for motherhood or milk for Abyssinian children. We recognize that perhaps a little more knowledge about aging would be helpful. We see quickly the many common denominators between aging and blindness, and are ready to offer our assistance. While aged persons vary greatly one from the other, we are prepared to take the time and effort necessary to bring effective rehabilitation services to every older person capable of benefiting from them. Certainly, "our hearts are in the right place."

□ Of course, it is not that easy. We are reminded that at the beginning of this paper we disposed so handily of some key problems. The fact is that older people do not always know about us or seek us out; or if they do, it is more often than not after years of putting up with a serious decrease in vision without help. When they do come, it is frequently after many other losses have already been sustained, thus making effective rehabilitation all the more difficult. In addition, they may have other concerns which must receive prior attention. Their income is often most limited, there are often other health problems, and their living arrangements may be far from satisfactory. It is hard to discuss braille or mobility, or even to talk of just plain hope, with a person beset with so many reality problems. And if through effort we find a client for whom some rehabilitation is possible, then we are beset with limited staff, limited funds, and a dearth of other community resources toward which we might turn. When the older person must compete with the younger for available staff, all too frequently the older person is handed the short straw. There are, of course, no simple answers, but I would like to offer a few thoughts that appear relevant to the overall picture.

In 1967, I attended the Eastern Regional Conference of the National Council on Aging in Washington, D.C. It was appalling to find that, out of 600 participants from 17 of the most populous eastern states, a representative of the Talking Book Division of the Library of Congress and an optometrist from North Carolina appeared to be the only ones in attendance with any basic connection to work with the blind, any understanding about what to tell persons faced with decreasing vision, or any knowledge about the prevention of blindness. It became very evident that workers for the aged and workers for the blind were each laboring in their own private valley, and that each group, though having many common interests, knew relatively little about the other.

If we are going to make any substantial headway on behalf of the aged blind, we must involve ourselves actively in the overall problems of the aged. The onus rests on us. Most of the blind are aged, whereas by contrast, only one percent of the aged are legally blind. Broadening the definition of blindness will naturally raise the percentage; but it will not place a concern for blindness at the top of the priority list in the field of gerontology. The concern there is with the broader problems of income, health maintenance, and the delivery of health services, with adequate housing and part-time employment, with consumer protection and the overall availability of suffi-

**The Aged Blind People Do Not
Always Seek Help**

*Most of the blind are aged; few of the
aged are blind*

cient resources for the satisfying use of leisure time. What is good for all the aged is obviously good for the aged blind, and our voices should be heard wherever the problems of aging are discussed.

□ We need to participate in conferences on aging and in the planning councils and committees, be they at the local, state, or national level. Such participation can accomplish a number of basic purposes:

1. It will lend our strong voice to gather support for legislation and community programs to benefit all the aged.

2. It will give us an opportunity to make the special needs of aged blind persons known. Often what is good for the blind is also good for the aged. Thus, for example, in the field of housing: better lighting, and avoiding the inclusion of open stairwells and low-hanging metal objects in building designs are sound safety features for any apartment unit.

3. It will keep us informed about all aspects of aging, while at the same time allowing us an opportunity to give the field of aging a proper orientation to resources and attitudes concerning the visually handicapped. When you have this kind of exchange, it becomes a rather moot question whether blindness in an old person is primarily a problem of aging or of blindness. If those who work with the aged know about blindness, they will be in a position to help the person with a vision problem and to make an early referral when specialized services seem indicated. By the same token, if we, as workers for the blind, know something about aging, we will be able to make appropriate referrals, and help our clients effect a sound adjustment, while at the same time teaching the needed skills.

4. Out of such participation can also come a more effective presentation to our boards of directors on the needs of the aged blind persons we serve, a presentation which, hopefully, can lead to a loosening of the purse strings, and increased appropriations for geriatric programs.

5. Such participation and integration at the professional and board level will also facilitate and encourage participation and integration at the client level. The aged blind need to join forces with others, be it for enjoyment, living arrangements, or the promotion of legislation in their behalf. Integration of the client, be he aged or blind or both, is, after all, the ultimate goal of our rehabilitation efforts.

In short, while we must continue to work hard in our own valley to provide specialized services to the blind, we must, at the same time, get ourselves over to the other side of the mountain and join forces in every way we can with those groups and organizations that are working on behalf of all the aged, including the blind.

□ This paper has not attempted to summarize all the physiological, social and psychological data on the combination of aging and blindness. Rather, it has sought to provide a framework, an approach, a way of thinking, that will lead to a heightened tempo of activity on behalf of the aged blind. Surely, there is much that we still need to know, and research by sociologists, psychologists, and practitioners is needed. But we do not have to wait for

Workers for the Blind Should Participate in Meetings on Aging

The Aged Blind Await Our Help

the answers. We already know a great deal, and an army of aged, blind persons awaits our help. It brings to mind a favorite quotation from the Ethics of the Fathers:

"It is not our duty to complete the task,
But neither are we free to take no part in it."

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A Reminder

Readers of *The New Outlook* are reminded that the magazine
is not published during the months of July and August.
Publication will resume with the September issue.

Activity or Idleness: Restoration of Social Contacts Among the Elderly Blind

More than 65 percent of the clients requesting the services of the Metropolitan Society for the Blind (MSB) are elderly. About 75 percent of this group have severe visual impairment and about 25 percent are totally blind. Although they form the largest group of clients served, we have been concerned that, proportionately, they have received the least amount of attention. Constructive use of leisure time has, for many, been nonexistent. Social isolation and exclusion from activities can cause loneliness and unhappiness. With handicapped people, isolation and rejection can be more crippling than the handicap itself. We felt, therefore, that it was imperative that we find ways to make meaningful opportunities for social and recreational experiences available to our elderly blind in order to enrich their life experiences.

□ About two years ago, we began to direct our attention to the residence and nursing homes in our community. We found that in almost every institution contacted, visually handicapped persons were not integrated into the existing recreational programs. This exclusion was not a conscious rejection on the part of administration and staff; it resulted from a lack of understanding. We found that blind residents were generally considered "afflicted," "helpless," or totally incapacitated, and that they formed an undifferentiated group for whom "one does things."

Staff members, for the most part, were responsive and eager to learn about the tools with which we are familiar, e.g., Talking Book machines, large print material, writing guides, aids, games, etc. They welcomed our guidance and consultative expertise, and our innovative ideas in regard to programs. They soon saw many of their forlorn and forsaken blind residents "come to life," and assume greater independence, self-expression, and self-reliance. This, in turn, reduced some of the custodial responsibilities of the staff.

On one occasion, we arranged a group meeting in the sitting room at Carmel Hall, a residence home for the aged administered by the archdiocese of Detroit. The meeting was attended by aged persons, both blind and sighted. Some were very hard of hearing, others were handicapped by arthritis or other afflictions. We listened to a Talking Book article from the *Ladies Home Journal* on sex education in the schools. There was silence for a moment after the record ended. Then one woman spoke up: "We're not too old to consider the importance of this subject. We have grandchildren, grandnieces and grandnephews; we should be concerned." Another woman, a blind lady in her 80's said after the meeting that she had not known she "had such nice neighbors" on her floor. She had lived, day in and day out, in her own little room, isolated because of her blindness from other residents

MILDRED F. STERN

*Mrs. Stern is social service consultant,
Metropolitan Society for the Blind, Detroit.*

The Visually Handicapped Were Not Integrated into Recreational Programs

Staff members were eager to learn

and activities. Nick, 81, felt "life was over" when he lost his sight. A former vaudeville entertainer, he was completely dejected, repeating over and over again, "I'm just waiting for my Maker." Several residents, recognizing him, urged him to sing and dance. When he seemed a little hesitant, the writer coaxed him by suggesting that, while he was waiting for his Maker, we would enjoy a song. The applause that followed his performance revitalized him. He smiled, stood straighter and taller, and regained his self-respect. He became the star performer at the Home.

Next we got involved with community resources. We visited recreational programs for senior citizens sponsored by the City of Detroit, and centers sponsored by the United Auto Workers' Retired Workers Program. The administrators of these programs became interested in expanding their services to include our elderly blind.

□ It was felt that one very tangible project could be the inclusion of the MSB's elderly clients in a four-day summer camp. We were asked to serve on a camp committee. Others on the committee agreed that blind senior citizens could participate in most of the same activities as their sighted peers. The Metropolitan Society for the Blind began to screen their clients for participation in the camping program. The main factors considered were: (1) the client's general physical condition, (2) his degree of visual impairment as related to daily functioning, e.g., travel ability, and, (3), his personality attributes.

From approximately 30 candidates, we selected ten persons who seemed well suited for a pilot group. A home visit was then made to describe the camp setting and activities, and to observe the client in his own residence. Nearly all of the people chosen were enthusiastic but, at the same time, a bit apprehensive about going to camp. It was the worker's feeling that without this personal talking through of anxieties, fears, and apprehensions, most candidates would probably not have had the courage to proceed to camp unaccompanied by a close friend or relative. The worker also assisted in filling out necessary registration forms, details of which can be confusing.

Although ten clients were ready to go to camp by June 1967, six cancelled out. Their reasons were varied, but valid. In several cases, civil disturbances in Detroit in late July had frightened them and they were reluctant to leave the safety of their homes. Some of them had had family or personal illness, and, finally, some were unable to make plans for the remaining household. Of the four who attended the camp, three were in their 70's and one was 57. All were women and appeared much younger than their stated ages. The four ladies thoroughly enjoyed the experience. One of them said: "I'm having the time of my life." The four campers were directly involved with the other senior citizens in the activities of the camp. In varying degrees they participated in crafts, hiking, swimming, card-playing, dancing, and song sessions. One of the ladies won first prize at the Masquerade Ball.

With the exception of one camper, who was still quite active, camping was the first large group socialization experience for these agency clients. It is our impression that many sighted campers, as well as the staff personnel,

Community resources

A Four-Day Summer Camp

*Those who stayed home and
those who went*

came to realize that blindness is not as incapacitating as they had previously believed. Conversely, MSB clients must have learned the meaning of group acceptance and gained confidence in their own ability to participate with a group of sighted people.

□ The camp supervisor, Miss Linda Meyers, a recreation worker with Detroit's Parks and Recreation Senior Centers, utilizes many senior citizens as volunteers in city-wide activities. Every year, during the Christmas holidays, a Christmas Fantasy for youngsters is staged in Cobo Hall, a large municipal auditorium. The elderly assist in many ways—passing out candy canes, serving food, baby sitting, etc. This year, the supervisor suggested that MSB clients volunteer to act as "Santa's helpers" by answering the telephone in Santa's Workshop. They had to be able to arrange their own transportation and give four hours of volunteer time at a stretch. Five elderly blind clients participated, giving a total of 123 hours of volunteer time, averaging over 24 hours for each.

All of them were most enthusiastic about having an opportunity to share in the holiday spirit. As one lady commented, "This is the first year I haven't had to look at four walls." "Christmas really meant a lot to me this year," said another. And one woman added: "Being here has added ten years to my life."

Throughout this two year period, Miss Margaret Hossack, senior citizen program coordinator of the City of Detroit, Miss Frieda Gorrecht, director of the U.A.W. Retired Workers Centers, and staff members of the Metropolitan Society for the Blind worked on a plan whereby our elderly clients who were not mobile could be involved in leisure time activities. In view of the fact that there are existing centers serving the elderly in various parts of Detroit, we decided to utilize two centers, one on the east side and one on the west side of the city. This project, called Project Restore,* was to be sponsored by the City of Detroit; its purpose was to provide transportation for MSB clients. It was presented to the Michigan Commission on Aging and was funded by the Older Americans Act.

□ The project narrative below provides a complete description of the need for Project Restore. It gives a detailed analysis of the component parts and working plans which form the foundation of the program. The goal of Project Restore is to integrate the blind senior citizen into recreational activities with his sighted contemporaries.

It is our firm belief that the problems involved in personal adjustment and new physical environment are minimal and easily resolved. The formidable and frustrating barrier of social isolation can be overcome with the help of professional workers who are responsible for promoting community understanding.

The Metropolitan Society for the Blind is attempting to show how this can be accomplished and is also preparing the blind person to realize his responsibility in the relationship. We must make every effort to make recreation

Acting as Santa's Helpers

Recreation for non-mobile elderly blind persons

Project Narrative

Problems are easily resolved

* A program for the elderly blind (Project No. AOA 0223-01)

and leisure time resources available to our elderly blind and visually impaired persons. We must also be aware that these persons need our help in preparing themselves to take part and enjoy what is available to them.

In general, older people need help in becoming acclimated to retirement and in learning to enjoy their leisure time. It is no different for those who have a visual loss. The project narrative reads as follows:

The City of Detroit, Department of Parks and Recreation, The Metropolitan Society for the Blind, and the U.A.W. Retired Workers Centers of Detroit, Inc., jointly propose a program to enable older blind and handicapped persons to expand their social and recreational experiences which will help to restore to them a sense of worth and dignity and a sense of well-being.

We propose to demonstrate that, with the addition of appropriate equipment, with some minor refinement in our existing retiree programs, with the utilization of existing recreation facilities, and with the proper leadership, elderly blind and disabled persons can directly benefit from participation in recreation and group work programs with their well and "normal" peers.

We would expect to have the elderly blind participate in such activities as choral work, crafts, square dancing, social dancing, and discussion groups along with those regular participants of our centers.

☐ It has already been demonstrated that planned recreation programs for the aging are of vital importance to sustain good mental and physical health, to combat loneliness, and to provide a setting for meaningful community service activities. These same experiences should be made available and accessible to the elderly blind and disabled.

Two existing day center programs for retirees have been selected for this demonstration. The project director will work two full days at each center, using the fifth day for records, staff meetings, transportation arrangements, correspondence, and evaluation. The project director will arrange personal interviews with each client referred by The Metropolitan Society for the Blind to determine which of the centers and which activities being offered would be most beneficial. The Recreation Department staff and the U.A.W. Retired Workers staff would be consulted prior to the first visit by the client to assist in the planning for the individual's experience in the center. Transportation for the client would then be arranged by the project director. Upon arrival at the center, the project director will personally assist them in participation in activities that are being conducted by the group work and recreation specialists. It is projected that 11 elderly blind men and women could be served each day at each of the centers, or a total of 44 per week. It is anticipated that additional clients could be served if private transportation for them could be arranged.

The Servicar Corporation of Michigan has Volkswagen buses which will seat 11 persons, and the cost figure of transportation is based on their estimates.

☐ The project director will evaluate the program by assessing the changes in the individuals receiving the service. At intake and for a period of three weeks following intake, an evaluation of the clients' present physical mobil-

Recreation Programs Are Vital to Mental and Physical Health

Evaluating the Program

ity, socialization activity, behavior within the home environment and range of interest and skills, will be made by the referral agency, the project director, and the center staff members. This record will be used as a base of measurement six months after the beginning of the project. The project director will use the following method at the six month evaluation period:

1. Individual interviews with the client.
2. Consultation with center staff working directly with the client from the time of entry into the program.
3. Consultation with the staff of The Metropolitan Society for the Blind, who will be responsible for the original referral of the client.

The assessment of each individual's experience will attempt to measure the following:

Factors in assessing individual experience

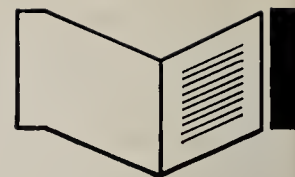
1. Measure of increased physical mobility.
2. Increase of socialization activity outside the confines of the center program.
3. Change in the client's behaviour within the family structure.
4. The acquisition of new skills and interest by the client.

The six month evaluation shall also spell out problems related to transportation, program deficits within the centers, staff difficulties in working with handicapped people, and physical site limitations which may need to be changed so that the maximum benefits to each individual can be realized. The project director shall consult with center staff and administration as well as The Metropolitan Society for the Blind to make this assessment and plan for reaching a solution to any problems within the project service.

☐ At the end of each year an evaluation will be made based on the objectives of the project by a qualified person not connected with the project.

A Qualified, Impartial Person Will Evaluate the Project

The facilities to be used will be the G.A.R. Senior Center at 1942 Grand River at Cass in the downtown area, and the East Side U.A.W. Retiree Center, which is located in a Parks and Recreation facility, the Parkside recreation Center at 12075 Frankfort. Both have first floor facilities with meeting rooms, offices and large assembly rooms housing existing senior citizen programs.



Educational Experience for the Retarded Blind, by Irene Blanchard, Don Bowling and R. Lincoln Roberts. *Mental Retardation* (American Association on Mental Deficiency, 5201 Connecticut Ave., N. W., Washington, D. C.), Vol. 6, No. 6, December 1968, p. 42-43. A short report on an experimental program of concentrated educational activities conducted with severely retarded blind children at the Pacific State Hospital in Pomona, California.

New Dimensions for Blind Youngsters. *Today's Health* (535 North Dearborn Street, Chicago, Illinois 60610), Vol. 47, January 1969, p. 34-39, illus. The story of the Foundation for the Junior Blind in Los Angeles. This nonprofit organization provides classes, tutoring, workshops, and recreation for more than 800 young people, ranging in age from six to 21.

Knowing Art in a Museum Through the Perception of Touch: The Mary Duke Biddle Gallery for the Blind, by Charles W. Stanford, Jr. *North Carolina Museum of Art Bulletin* (107 East Morgan Street, Raleigh, North Carolina), Vol. 8, No. 2, December 1968, p. 4-11, illus. 35c. Text of a paper concerning the development of a special museum gallery based on sculpture and reliefs. The paper was delivered by Mr. Stanford, the Curator of Education of the North Carolina Museum of Art, at a meeting of the Soviet Committee of the International Council of Museums held in Leningrad and Moscow in May of 1968.

Book Selection, by Florence Grannis. *The Braille Monitor* (National Federation of the Blind, 2652 Shasta Road, Berkeley, California), February 1969, p. 511-520. Address delivered at a federal conference of regional libraries for the blind, Washington, D. C., December 2, 1968. Mrs. Grannis is the Assistant Director in charge of Library and Social Services at the Iowa Commission for the Blind in Des Moines, Iowa.

Aids for the Partially Sighted, by D'Arcy Macdonald. *International Ophthalmology Clinics* (Little, Brown and Company, 34 Beacon Street, Boston, Massachusetts 02106), Vol. 7, No. 1, Spring 1967, p. 217-230. Dr. Macdonald discusses types of low-vision aids and psychological factors affecting their successful use.

Italic, Lunatic and Dotty; a Letter to a Friend, by Leonard J. Cumner. *The New Beacon* (Royal National Institute for the Blind, 224 Great Portland Street, London W1N 6AA, England), Vol. 53, No. 621, January 1969, p. 2-4. Mr. Cumner, who suddenly and completely lost his sight at the age of sixty-four, tells of his problems in continuing to use script writing. The characters he finds easiest to use are the Moon alphabet letter forms.

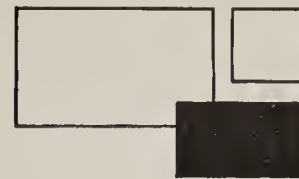
Blind Horsemanship, by E. M. Amphlett. *The New Beacon* (see address above), Vol. 53, No. 621, January 1969, p. 4-6. The story of Mrs. Adrienne Ferryman, who has

continued to compete in team riding events despite losing her sight in 1965.

I Was Born That Way, by John Jarvis. *St. Dunstan's Review* (191 Old Marylebone Road, London, N. W. 1, England), Vol. 54, No. 594, February 1969, p. 3-5. Mr. Jarvis, the Secretary-General of the World Council for the Welfare of the Blind, points out some of the special problems faced by the congenitally blind individual.

Team Manager—Jimmy Wright, *St. Dunstan's Review* (see address above), Vol. 54, No. 594, February 1969, p. 12-15. Mr. Wright worked as a cameraman in the film industry prior to his blinding in World War II. In 1951, after seven years hospitalization, he re-entered the film industry in the area of administration. His company is involved in the production of advertising films and documentaries for television.

Opportunity for "Multi" Handicapped, by Jim Alexander. *Motive* (Ohio Department of Mental Hygiene and Correction, Ohio Departments Building, Columbus, Ohio 43215), Vol. 14, No. 6, January-February 1969, p. 23-25, illus. Report on a specialized rehabilitation program for blind retardates at the Orient State Institute. The program was developed in cooperation with the Bureau of Services for the Blind and involves the teaching of sheltered workshop skills. —M. M. R.



■ A new organization has been formed by guide dog owners and their interested friends from the New York City metropolitan area.

The organization has three major goals: the amendment of state laws concerning guide dogs, the improvement of the attitudes of landlords toward renting to blind guide dog owners, and the improvement of public understanding of what a guide dog is and does.

The group meets on the second Saturday of each month at 2 PM, at the Central Presbyterian Church, New York City.

■ A new publishing company, specializing in the reprinting of popular book titles in large-print editions, has been formed in Boston. The company, Lane-wood Press, will publish cloth-bound editions on low-glare paper, in 16- and 18-point type sizes.

Titles will be selected from recent and current best seller lists. The selection of titles will be aided by an editorial review board composed of librarians, booksellers and reviewers.

■ The California Association of Orientation and Mobility Specialists, an organization formed in 1967, is soliciting new members. Applicants from California and other Western states will be welcome.

The association has northern and southern chapters which hold independent meetings in the San Francisco and Los Angeles areas. It holds an annual convention whose location alternates between the two areas.

Persons wishing further information may contact Mr. Pete Wurzbarger, Chairman, Northern Chapter, C.O.A.M.S., 400 Adams Street, Albany, California 94706, or Mr. Maury Brooks, Chairman, Southern Chapter, C.O.A.M.S., 23025 Cohasset Street, Canoga Park, Calif. 91304.

■ The Connecticut Association of Orientation and Mobility Instructors, formed January 23, 1969, is inviting new members from within the state.

The purpose of the organization is to permit orientation and mobility practitioners to have a state-wide forum for the discussion of problems relating to their field.

Qualified persons may apply to the Connecticut Association of Orientation and Mobility Instructors, 170 Ridge Road, Wethersfield, Conn. 06109.

■ Philip N. Harrison, former executive secretary of the Pennsylvania Association for the Blind, died February 7 in Harrisburg.

Mr. Harrison retired as executive secretary in 1960, after 20 years of service, but continued to serve as secretary of the association and a member of its executive committee.

He received the Shotwell Award from the American Association of Workers for the Blind, and was cited by the President's Committee on the Employment of the Handicapped.

■ The Association for the Education of the Visually Handicapped has moved its national office to Philadelphia. All correspondence to AEVH should now be addressed as follows: Mrs. Mary K. Bauman, Executive Secretary, Association for Education of the Visually Handicapped, 1604 Spruce Street, Philadelphia, Pa. 19103.

■ Science for the Blind, a non-profit organization formed in 1955, provides recorded scientific information and develops technical work-aids for visually handicapped scientists, technicians, hobbyists and laymen. Many of these tools are designed specifically to meet individual job requirements.

The organization is headed by its founder, Thomas A. Benham, Professor of Engi-

neering at Haverford College, Pennsylvania.

Persons wishing information on the organization and its services should write to Science for the Blind, 221 Rock Hill Road, Bala-Cynwyd, Pa. 19004.

■ The Orientation and Mobility Interest Group of the American Association of Workers for the Blind has established the Lawrence E. Blaha Memorial Award. It will be given to individuals who make an outstanding contribution in the field of orientation and mobility.

Coming Events

June 15-20 Summer Institute in Social Service Administration, Catholic University, Washington, D. C.

June 18-20 National Association of Hearing and Speech Agencies, Annual Conference, Washington, D. C.

June 22-28 American Library Association, Annual Convention, Atlantic City, N. J.

June 30-July 5 National Education Association, Annual Convention, Philadelphia.

July 20-23 American Association of Workers for the Blind, Annual Convention, Chicago.

June 22-27 American Instructors of the Deaf, Annual Convention, Berkeley, Calif.

August 24-29 International Congress of Gerontology, Washington, D. C.

August 6-9 Blinded Veterans Association, Annual Convention, Philadelphia, Pa.

Nov. 20-22 National Society for the Prevention of Blindness, Annual Meeting, New York, N. Y.

Dec. 5-6 National Social Welfare Assembly, New York, N. Y.

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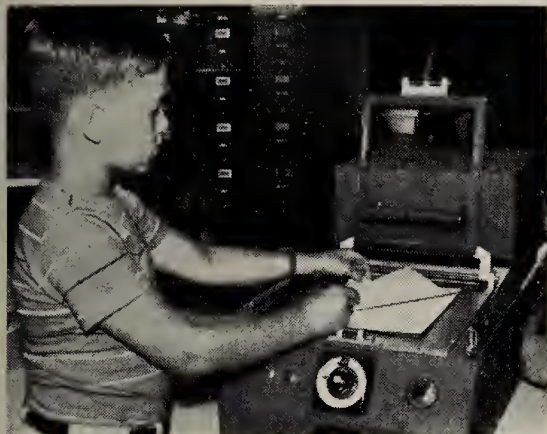
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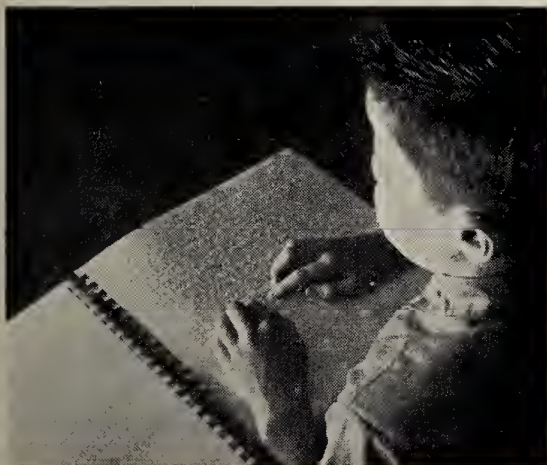


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September 1969 Volume 63 Number 7

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Integration of the Visually Limited into a Comprehensive Rehabilitation Center

The Pennsylvania Rehabilitation Center (PRC) is a comprehensive, vocationally-oriented, in-patient rehabilitation center. It has the capacity to serve 450 clients at one time. The center provides counseling, testing, vocational evaluation, vocational training, and the various medical modalities to a variety of disability groups. Late in 1967 the center, working with the Pennsylvania Office for the Blind (POB), began to accept visually limited clients for vocational evaluation and possible training.

Small numbers of visually limited clients were integrated with other disability groups served by the center. The main purpose of client referral to the center was for vocational evaluation. In June 1968, the Research and Training Center in Vocational Rehabilitation of the University of Pittsburgh, with the help of the PRC, established a follow-up study to determine the feasibility of integrating this group of clients into a comprehensive residential rehabilitation center. What follows is a brief summary of that study. The purpose of the study was to determine clients' and counselors' subjective reactions to the total impact of the center. It did not attempt to evaluate specific recommendations made for the client by the center or to determine whether, in fact, the client entered the area recommended.

☐ The data were gathered by:

1. Sending follow-up questionnaires to each POB counselor who had placed clients in the Rehabilitation Center,
2. Conducting structured telephone interviews with the first 29 clients who had been accepted for service,
3. Conducting structured interviews with the nine Pennsylvania Rehabilitation Center counselors who had handled the visually limited clients in their caseloads,
4. Holding additional interviews with personnel from 11 other departments that might have been affected by the inclusion of visually limited clients in the caseload of the center.

☐ Of the 29 visually limited clients referred to the Pennsylvania Rehabilitation Center, 20 were males and nine were females. Their ages ranged from 17 to 50, with the majority (22) falling at or below 30. Recorded years of schooling ranged from seven to 14; 18 clients had 10 or more years of education. Tested intelligence scores ranged from 58 to 122. It should be noted here that the type of intelligence tests used differed from one individual to another while test scores sometimes varied for the same individual. The kind and degree of visual limitations of the referred clients was quite varied. Their

JEAN BLOOM, Ph.D.
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How the Data were Gathered

Breakdown by Age and Nature of Handicap

handicaps included congenital, traumatic, and degenerative disabilities. Seven clients had bilateral involvement of the retina, choroid or both, five had atrophy of the optic nerve, and five had traumatic injury to both eyes. Three clients were totally blind in one eye and partially blind in the other eye. Two clients had an enucleation of one eye with a cataract on the other. Two clients had bilateral congenital cataracts and two had bilateral congenital muscle degeneration. In addition, one client fell into each of the following categories: amblyopia ex anopsia, retrolental fibroplasia with aphakia and nystagmus with strabismus. In addition, 14 of the 29 clients had a secondary diagnosis of some other physical or emotional problem.

The counselors at the Pennsylvania Office for the Blind reported that 14 of the 29 clients were employed and 15 were still unemployed. For 12 of the unemployed clients, the counselor was considering vocational training, jobs in sheltered workshops, extended evaluation, or further counseling. The POB counselors indicated that recommendations made at the center had been feasible for 19 of the 29 clients and that three recommendations had not been considered feasible. The remaining clients discharged themselves after a short period of time and could not be evaluated. The study also attempted to elicit suggestions for improving client service from the POB counselors. Sixteen of the counselors made no recommendations or felt unable to judge the services at that time. Those who did offer suggestions for improving service stated that there was (1) a need to maintain closer supervision of visually limited clients, (2) a need to establish closer liaison between the Pennsylvania Rehabilitation Center and the Pennsylvania Office for the Blind, and (3) a need to receive reports more rapidly after the client's vocational evaluation had been completed.

☐ Interviews with the clients indicated that most of them felt that they had become more independent and self-confident while at the center. Some had appreciated the chance to explore vocational skills and the help they had received in seeking employment. The majority of visually limited clients also felt that they had been welcomed by both the other clients and the staff of the PRC. Seventeen clients indicated that they had had no trouble adjusting to the center, but seven stated that they had had some problems in adjusting to the physical setup and/or adjusting to other clients. Eleven of the clients made no recommendations for improving services at the center. The remainder recommended such things as: (1) improvement of tools and/or texts for individuals with limited vision, (2) improvement of courses and course materials, (3) opening more courses to them, and (4) providing more extra-curricular activity. Seventy-nine percent of the group responding indicated that they would return to the center for service. The overall feeling of the clients was that all personnel tended to be overprotective of them and would not allow them to try out new activities which they felt they could manage.

When the center staff first began working with visually limited clients, they had some feelings of insecurity and ambivalence. However, most of those interviewed felt that visually limited clients could benefit from the services offered by the center. The difficulties which the counselors encoun-

**The Clients Were Pleased
but Recommended Some Changes**

*The most frequent recommendation
was for in-service training*

tered were in the areas of socialization, communication, reading, and mobility. But the PRC counselors soon realized that this group was not much different from other disability groups. The problems that arose depended on the individual client's acceptance of his disability and on his overall adjustment. Several of the PRC counselors believed that there was a need for more information and for better communication with the Pennsylvania Office for the Blind. Many of them also felt that the POB counselors were too demanding or too protective of their clients. The most frequent recommendation—one that came from all levels of the center staff—was for an in-service training program that would help the staff give better services, by promoting better understanding of the problems of the visually limited client.

□ It is interesting to note that one of the instructors in the training area tried to gain a better understanding of the visually limited by working for several days with a patch over one eye. Several others looked for special training manuals or tools that would help the visually limited in their courses. The vocational evaluators modified techniques for this group and secured special large-print tests. One of them attended a special conference on the blind and visually limited.

It appears from this follow-up that visually limited clients can be successfully integrated into facilities serving other disability groups. The following are recommendations for setting up programs for the visually limited in rehabilitation facilities serving other disability groups: Services to visually limited persons can be effective if in-service training programs for the staff of the rehabilitation facility are instituted prior to acceptance of clients for service. Such in-service training programs might best be co-sponsored by the facility and the state office for the blind. Written inter-agency referral and communication procedures should be well established before clients are accepted for service. In addition, counselors from all participating agencies should confer regularly to alleviate the misunderstandings that tend to arise in a cooperative venture of this nature.

Instructors Went Out of Their Way to Learn

Designing and Producing Tactual Maps for the Visually Handicapped

Assuming that a blind person has been adequately trained in mobility and the use of various tools and techniques to avoid obstacles, he still needs some device that will aid him in orientation and allow him to expand his physical area of travel. The primary purpose of the project discussed in this paper is to meet this need through the design and production of large-scale orientation and mobility maps.¹ We are not concerned here with route maps, which are nothing more than an extension of a number of memory guides (tape recordings, verbal "maps," etc.) already available.

□ The scope of this project is limited by three factors. First, the emphasis is on the design and production of large-scale maps. These vary in scale from mobility maps of neighborhoods, shopping centers, or single buildings to general orientation maps of metropolitan areas. The latter are used, however, solely as a supportive spatial framework which allows the user to relate himself to a broader area. In order for a blind person to make intelligent use of tactual maps he must first be initiated through a training program which uses maps of the largest possible scale. Such maps must be of sufficiently large scale that the blind can obtain personal knowledge by walking the area concerned. Therefore, introductory maps should be of simple room plans or street intersections. Once the user has become spatially oriented, additional areas can be added and, up to certain limits, the scale can be decreased and the level of generalization increased.

The coverage of the maps is limited by two things: the degree of symbol complexity (that is the amount of information to be carried on the map, as it relates to the closeness of individual symbols and lines) and the reproduction process used. Generally, however, the finished product will be on a braille page size, 11 by 11½ inches.

Second, the maps are intended to meet mobility needs. In this sense they are directed at providing the blind person with a guide to a particular area. In the course of research, maps have been produced of such disparate areas as hotel lobbies, complex buildings, shopping centers, school and university campuses, and guide dog training areas.

□ The successful mobility map will provide just enough information to meet the specific movement requirements of the blind person. This precludes the straight transliteration of sighted maps and involves the careful selection of mapable information. The user must be able to re-orient himself within

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The Emphasis Is on Large-Scale Maps

The Successful Mobility Map Will Give Only the Essential Information

An earlier article by Mr. Wiedel on tactual maps appeared in the March 1969 issue of the *New Outlook*.

an area if he becomes lost; the map must therefore contain easily locatable and identifiable orientation points—for example, the intersection of named streets, buildings, or businesses with particular noise or smell characteristics, permanent obstacles or obstacles which partially block the path of travel. This means that in almost all cases the area to be mapped must be walked over since data of the type required are seldom identified on maps for the sighted.

Third, the designed map is to be capable of reproduction in reasonable quantities (that is, 25 copies and up) on a durable, light-weight material. This precludes the production of single, unique maps that are incapable of reproduction at low cost. This does not mean that such single, unique maps are not of great value in providing the students with a degree of orientation to their surrounding campus and neighborhood.

Given the present technology in raised-line reproduction, and the overall limitations of the research project outlined above, the thermoform process has proven most adaptable. It is the most widely used of the processes and has the lowest cost in terms of the production of a limited number of copies. It allows for different levels of elevation and will take mimeograph as well as typewritten lettering. This is an important point: 60 percent of the legally blind have light perception and can, with optical aids, read large type (18 point). The use of type also enables blind persons to obtain help from sighted persons. In our research, the thermoform master is produced by inscribing on a metal foil which is backed with a flat white paint. We use scribing tools which produce various line textures (other textured materials can be stuck onto the face of the master). This process gives us a permanent master which can be reproduced on molded plastic of either .004 or .008 inch thickness, at a low unit cost. The .008 inch thickness, because of its rigidity, is desirable if the user is to carry and use the map while travelling the area. The thermoform method of reproduction is widely available and this type of master plate is both cheap and easy to prepare, particularly when compared to the alternatives—silk screen, thermocraft, and deep etch.

☐ In order to determine effective symbol and design elements the following steps were taken:

A literature search and international survey of current tactual map production was undertaken. It was found that most international work revolves around small-scale maps which, it was discovered, are of little or no use unless proper training in map reading is available. This training necessitates the use of large-scale maps of a known environment. Logically, therefore, a need exists for well designed, easily reproducible, and portable large-scale mobility and orientation maps. However, with the exceptions of practical research at Worcester and Nottingham, England, and the research done by the authors, there have been few formal attempts to meet this need.

Through experimentation, the capability of producing standard maps in sufficient quantities to allow for testing with selected groups was developed. This preliminary phase of testing was directed toward the selection of symbols and design components that would be readable by a significant majority of blind readers.

The map must be reproducible in reasonable quantities

Steps in Determining Symbol and Design Elements

The test developed from the above was given under controlled conditions to pre-college students (ages 18-20).² The results of these tests confirmed findings using the clinical method with individual test subjects, and resulted in the preparation of a sample neighborhood map (Figure 1), shopping center map (Figure 2), and key with explanatory material (Figure 3).³ This was then subjected to further testing with residential students (ages 10-19) at the Maryland School for the Blind in Baltimore. After some modifications of the instruction and question sheet, this test was distributed to pre-selected residential schools, special education teachers, vocational rehabilitation centers, and mobility instructors throughout the United States.

□ On the basis of completed research, seven areas of concern are delineated. These are:

1. *Linear scale* is of little or no importance on maps of smaller scale than downtown city plans or campus maps. As a general rule, its importance increases with the increase in scale. For example, a city plan need show only number of blocks, not relative length of different blocks, while a building plan requires a linear scale related to a known distance, such as the length of a corridor or other passageway.

2. The use of a *starting point or points* should be emphasized for readers of each illustration since this is necessary for orientation. For example, a dormitory in which each student lives would be emphasized as a starting point on a university campus map. In the design, the starting point serves the same function as the focal point in a visual illustration. It is easily located and serves as a central point to which the blind person can spatially attach the bits of information that he collects as he tactually reads the map. The starting point must be prominent in the design—elevated above the level of all other information depicted. The blind reader must be able to locate it readily by scanning since all other information obtained from the map must

Test results led to preparation of sample maps

Seven Areas of Concern

A starting point is necessary for orientation

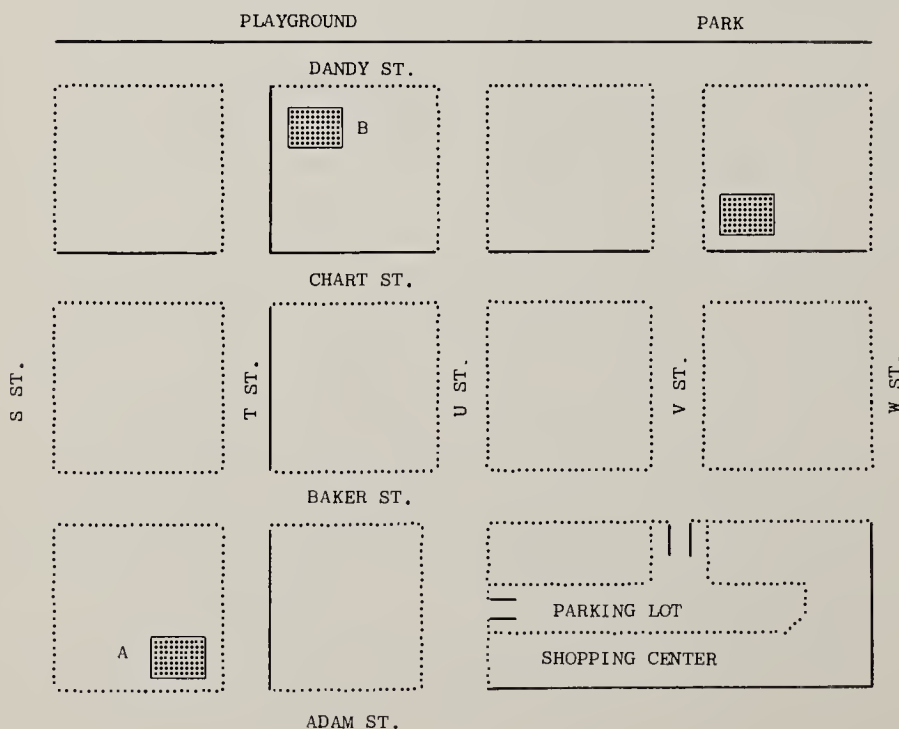


FIGURE 1
Neighborhood Map

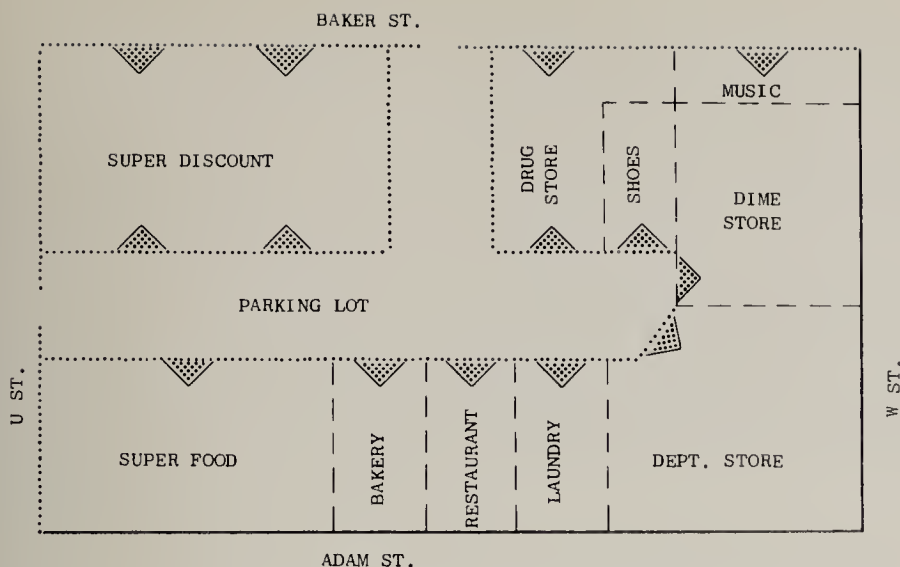


FIGURE 2
Shopping Center Map

be spatially oriented to some fixed point. The way a blind person is forced to read a map is analogous to the way a sighted person might read through a tube one inch in diameter.

3. *Size* should be such that the user can cover a significant portion of the map with one hand orienting him from his starting point. Maps that must be larger than the preferred Braille page size should have orientation points spaced within one hand-span of each other.

4. *Simplicity* in symbolization and design is, of course, a necessity. It is better to make several maps keyed for reference than to complicate one map with too many symbols. Whereas, in a sighted map, visual clutter is avoided by use of color and varying line weights, in the tactual map this is accomplished by different symbol elevations.

5. *Brailleing* is greatly preferred when possible. When used with symbols, it should employ, initials (e.g., LC for Library of Congress) rather than alphabetical or numerical keys. Although it is desirable to have braille placed on the map horizontally, blind persons, given a minimum amount of training, have little or no difficulty in reading braille rotated at various angles across the map. Since the amount of braille required on a map may be rather substantial, it is preferable to have braille at a lower elevation than other symbols. With the height of braille standardized at 15 mils, the other symbols must be elevated from 10 to 15 mils above the braille.

6. *Compass direction*. Because of the development of electronic devices, it is now a simple operation for the blind person equipped with a compass

User should be able to cover a large portion of the map with one hand

The map should be made for use with compass

The maps are titled at the top of the sheet. The top of the sheet is also north unless otherwise indicated.

<u>Shopping Center Map</u>	<u>Neighborhood Map</u>
..... Sidewalks	 Sidewalks
———— No sidewalks	———— No sidewalks
- - - - Division between shops	 Buildings
 Door entrance	

FIGURE 3
Key to Maps

to determine directions. Consequently, the north edge of the map is indicated by a textured margin which should extend the full width of the sheet.

7. *Training.* Preliminary findings indicate very strongly that, assuming that well-designed maps are available and that they are tactually discrete, there remains a major requirement for standardization of symbols and a systematic teaching program of map interpretation for the blind student. Standardization of symbols on tactual maps is of even greater importance than on sighted maps because of limitations imposed by tactual identification. Symbols developed to date that have proven to be tactually discrete, are shown in Figure 4. Efficiency in map reading increases with only a limited amount of training in map use and interpretation. This is illustrated by Table 1.

Amount of Map Reading Training	Age Groups			
	10-13	14-17	18-21	22+
None	41	50	54	73
Moderate amount	50	57	63	83
Percentile improvement	9	7	9	10

TABLE 1
Route Finding: Percentile Scores
by Age Group and Map Reading
Training (based on 376 Test Results).

It should be noted that less than one percent of the return indicated more than a moderate amount of training in map reading. The problem of training in map reading is compounded because of the natural inherent bias of the sighted designers of the graphics.

The problem of orientation is a continual one for the blind traveler, and orientation and mobility maps are primary tools for mobility instruction. There are an increasing number of people preparing tactual maps, but these maps, with rare exception, are transliterations of visual maps into tactual form. They are rather elaborate versions of standard visual presentations and are, for the most part, composite maps of a unique, unreproducible type. It is a confirmed observation that the mere transliteration of sighted maps into a tactual form presents considerable interpretation difficulties to the congenitally blind. Some of the visually handicapped are being introduced to graphics more today than in the past, and it has been observed that the interest and enjoyment resulting from the use of tactual maps is a strong positive factor in map training. However, the use of graphic material in mobility training continues to vary with the tastes and needs of the individual instructor.

The purpose of the raised map in orientation and mobility instruction is to help the visually handicapped person overcome the ambiguities and inaccuracies of his concepts of the world around him. The adventitiously blind have an advantage over the congenitally blind as they have, however poorly remembered, some spatial concepts. This is illustrated by the test scores in Table 2.

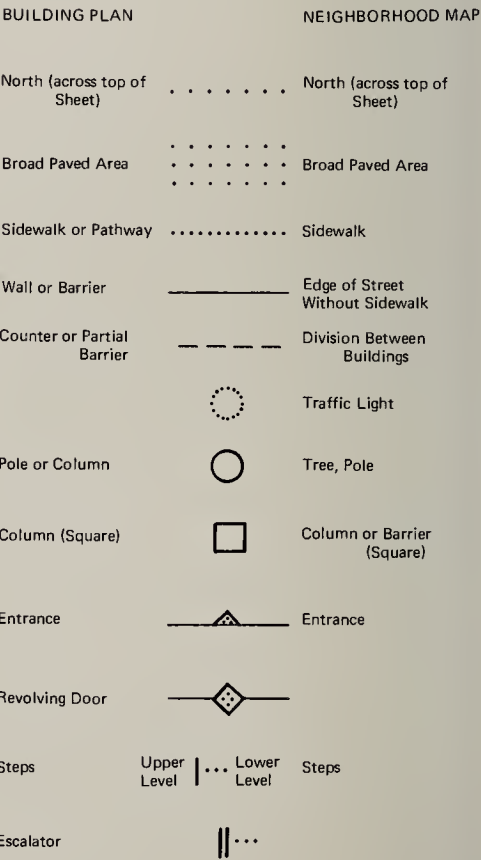


FIGURE 4
Tactually Discrete Symbols

	Age Group			
	10-13	14-17	18-21	22+
Congenitally Blind	49.5	52.5	55.5	68.5
Adventitiously Blind	72.0	66.0	63.5	79.0
Percentile Difference	22.5	13.5	8.0	10.5

For all blind persons, however, the map enables the traveler to gain factual and conceptual information about his surroundings. He can judge, by using the map, along what lines movement is possible and choose the best route to approach an objective. The map gives the traveler a framework for understanding the various component parts of an area and their geographical relationships.

□ As the person becomes more proficient at map reading, the amount of information that can be carried on a map can be increased by establishing conventional symbols, thus reducing the amount of explanation (brailling) required on the map. It is the capabilities of the user, together with the limits imposed by the reproduction process, that restricts the amount of material that can be obtained from any individual map.

The final product of the described research is to produce a manual of map design and reproduction which would be available to instructors of the blind who, using their own equipment, could produce maps to meet their own requirements and those of their students.

1. This investigation was supported, in part, by Research Grant No. RD-2557-S-68-C1 from the Social and Rehabilitation Service, U.S. Department of Health, Education, and Welfare.
2. Wiedel, J.W. and Groves, P.A. "Tactual Mapping: Problems of Design and Interpretation," *International Journal for the Education of the Blind*, 18:10-16, (1968).
3. All illustrations have been redrafted from tactual form to visual form for reproduction in this article.

TABLE 2

Percentile Scores by Age Group and Blindness Category on a Test Involving Symbol Identification, Orientation, and Route Selection (based on 376 test results).

The Amount of Information Can Be Increased as the User Gains Proficiency

Notes and References

Relating Psychological Data to Job Analysis Information in Vocational Counseling

Vocational counselors are concerned not only with the placement of their clients in work situations, but also with highly developed procedures in "human engineering" which must be used to make certain that the individual is advised to consider those occupational areas for which he is psychologically and physically best suited. The counselor most often secures appropriate psychological information in an effort to get to know his client. He also either completes job analyses or uses job evaluation data available to him to make decisions concerning types of information which may be of value to the client in the job selection and placement procedure.

□ In many instances, however, the counselor fails to synthesize information obtained from these important sources—the psychological evaluation and the job analysis.

The counselor should take five basic steps in formulating the appropriate procedure for effective interrelation and use of important information. These are as follows:

1. Study the needs of the client and the types of satisfaction most meaningful to him.
2. Make certain that valid psychological and job analysis data have been gathered.
3. Study the requirements of the job and evaluate the individual traits needed to meet job requirements.
4. Evaluate the environmental pressures ("press") with which the individual must interact.
5. So that the client will understand what the work will require of him and what it will offer, discuss with him the jobs under consideration and the information you have gained from job analyses and psychological evaluations.

In some cases, counselors have psychological evaluations completed and then fail to use them. The fact that a client has been evaluated psychologically seems to satisfy the counselor's conscience. The counselor may then proceed to give the client information about jobs which seem most likely to be available in the community. The requirements of these jobs may or may not be in congruence with the client's personality makeup as indicated by psychological evaluation, or in agreement with the client's interests or physical and mental capability as evaluated by the counselor. If the psychological evaluation indicates above-average intelligence, high preference for working with ideas, low interest in directing others, low preference for group activity, high scientific interest, and low persuasive preferences, the job of used car sales-

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Psychological and Job Analysis Information Must Be Synthesized

man, which "just happens to be available in the local community," is probably not appropriate.

In job analysis, the counselor should not only evaluate job requirements in terms of required human traits such as neatness or decision-making ability, but he should also study thoroughly what the job will offer the individual in terms of satisfying his needs.

When studying the needs of the individual, Maslow's¹ "need" hierarchy may be helpful. These needs, according to Maslow's theory, emerge in an order from the most to the least potent as follows:

- (1) Physiological needs
- (2) Safety needs
- (3) Personal and social worth needs
- (4) Self-actualization needs (development)
- (5) Cognitive needs (knowledge, information, ideas) and
- (6) Aesthetic needs (beauty, harmony, proportion)

Clients will attempt, in part, to satisfy their needs through work. The vocational counselor must be able to identify the general range of the client's needs and use this information in counseling. A client who is attempting to satisfy a cognitive need may be unhappy in a job that satisfies only one of his more basic wants or needs, such as the need for safety.

□ Just as the worker must meet the requirements of the job, so the job must meet the needs of the worker. If a balanced relationship between job requirements and the needs and abilities of the worker can be achieved, the worker will have improved perception and cognition and his actions will manifest themselves in at least a satisfactory work performance.

Murray² has discussed the concept of "press" and stated that it represents the effective or significant determinants of behavior in the environment. "Press" is environmental, while needs represent the determinants of behavior within the person. In job analysis, the counselor must develop an understanding of relationships that will exist between his client and other persons and between his client and significant work-relative phenomena (such as danger or safety, physical support or lack of support, good or bad weather, destructive or constructive rivalry, and negative or positive affiliation).

The social pressures on the job are as important to the individual as the actual job pressures. His ability to adapt to the social interactions of the work environment will directly affect his job performance.

It is the counselor's responsibility to ready the client for environmental press requirements as well as the actual job duty requirements. The counselor must understand the relationship between the needs of the client and the way in which the satisfaction of these needs will maintain and improve work performance and assure the maintenance of a continued healthy employment situation. In order to achieve this balanced relationship, the counselor must understand his client's level of need satisfaction, and must interrelate all the information he has concerning the client with all that he can gain concerning the requirements of the job.

Job must satisfy individual needs

The Job Must Meet the Requirements of the Worker

The concept of "press"

The counselor must always ask himself this question: What are the requirements of the job? This question can be answered superficially or in considerable detail. The lay job analyst can give the superficial requirements. The responsibility for in-depth description of the job belongs to the expert—the counselor who will often have to give direct advice to the client.

Effective placement requires effective planning. Planning cannot be fully useful unless appropriate information has been obtained, inter-related, and skillfully utilized, so that the client and the counselor have a clear understanding of possible problems and possible solutions.

*Effective placement requires
effective planning*

1. Maslow, A. H. *Motivation and Personality*. New York: Harper Brothers, 1954.
2. Murray, H. A. *Explorations in Personality*. New York: Oxford, 1938.

References

Industrial Home Will Establish Deaf-Blind Center

Under a \$600,000 grant from the Federal Social and Rehabilitation Service, the Industrial Home for the Blind, Brooklyn, N. Y. will establish and operate the first National Center for Deaf-Blind Youths and Adults.

□ For the past several years, the IHB has been conducting a research and demonstration project, which provides training, rehabilitation, and other services to deaf-blind persons in 15 northeastern and Middle Atlantic states, as well as more limited therapeutic and information services to persons in other areas. The new center will allow the IHB to apply the experience gained in this project on a national scale. A particular goal of the new center will be to break down public misunderstanding of and apathy toward deaf-blindness and to safeguard the rights of deaf-blind young persons to full citizenship and personal independence.

**Center Will Allow IHB to Apply Its
Experience on a National Scale**

Teaching Art to the Blind Child Integrated with Sighted Children

A blind student can learn basic art concepts and create art projects in the same manner as a sighted child. His blindness does not make it impossible for him to learn the ideas of art or to participate in art activities.

The basic goals of teaching art to a blind child are the same as for a sighted child: To improve the child's ability to handle basic materials, such as scissors, glue, paper, and crayon; to develop an understanding of the elements and principles of design; to teach him the basic vocabulary of art; to make him aware that there are various ways to approach an art project; and to stimulate him to think creatively.

But the goals directly related to art are not the only ones. The art teacher is also concerned with the psychological development of the child. By participating in all the activities of sighted children, the special student develops a confidence in his ability to function in a "sighted world."

□ The blind child must be made aware of the fact that he can learn as other children do. There are times when he will need to use special materials and techniques to aid him in completing a particular project, but he must understand that blindness in itself does not necessarily exclude him from the activities enjoyed by sighted children.

Special aids and materials are frequently used to aid the blind child in the art classroom. One of these is the screen board, a piece of plywood covered with ordinary household window screen. The screen board is placed under the drawing paper and the student draws with crayon, pencil, or ballpoint pen on the paper. By using the screen board the blind child is able to "see" his drawing through his sense of touch because the screen will texture the lines that he draws. Other useful classroom aids are the braille writer, the tracing board (a sheet of rubber or cork glued onto a plywood board), and the tracing wheel. These are used to texture the drawing paper. With these few additional materials, and with confidence in the child's ability, the instructor can teach all aspects of art to the blind student.

□ The art activities of the blind child need not be limited to the traditional clay modeling. The art class will be a more beneficial experience if the teacher adapts the regular classroom projects to the child rather than making up special projects for him. The major advantage of this procedure lies in the fact that the blind child can carry out the same projects as his sighted classmates and thereby come to feel that he is a part of the class. The blind child should be treated as a student first, and a blind student second.

The units of art work described below were taught to regular junior high school art classes into which blind children had been integrated. Each blind

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Blindness is No Bar to Participation in a Full Range of Activities

A Blind Child Can Carry Out the Same Projects as a Sighted Child

child did all the art projects that the sighted children did, and gained some of the same understanding of the art concepts involved in the projects.

It is especially important to acquaint art students with the basic principles and concepts used in organizing a good design. These principles are, of course, fundamental to all types of art work. The teaching of these fundamentals is a good beginning for an art program.

Our first project was to do a cut-paper design which applied the principles of variety, repetition, balance, and emphasis (i. e., establishing a center of interest). Cut paper designs illustrating these principles were shown to the class. Because the glued paper shapes were raised from the background, the blind student could "see" the design with his sense of touch, and could observe differences in shape, size, and relative placement of shapes. The blind student understood the concept of variety because he could find differences in shapes and sizes of shapes. He understood balance because he found shapes across the entire paper. He could observe the center of interest as a concentration of overlapping shapes in one area. He could even understand the idea of the viewer's eye moving smoothly about the design. In a proper design, the blind child could follow the shapes around the paper because they overlapped and were linked together.

□ Figure 1 is a cut-paper design made by a blind student. To observe the design principle of repetition, the student selected a basic triangular shape and related all the shapes in the design to the triangle. The shapes were cut with scissors without first being drawn. In keeping with the principle of repetition, only three colors were used. Shapes cut from each color were kept in separate piles so that the child would not mix the colors. To obtain variety in the design, the student cut several pieces of various sizes. Balance was achieved by repeating colors on either half of the design and by placing shapes across the entire paper. A center of interest was established by making the area in the lower left side more complex than the rest of the design. The largest shapes are used, and there is more overlapping of shapes. The two white shapes in the middle of the design are carefully arranged to point toward each other. This leads the eye smoothly to both parts of the design. This project illustrates that a child who is blind can understand and use the same concepts of art as a child who can see.

As a follow-up to this project—and applying the same principles of design—the student selected one real object and did a drawing in which this object appeared three times in slightly different form.

□ Figure 2 is a blind child's interpretation of this problem. It was done on a braille writer. Although it is not a realistic drawing, it does demonstrate the child's basic understanding of the design concepts of variety and repetition. The basic house shape is repeated but the size and roof detail of each house is different. It is important to keep in mind that the purpose of teaching art to junior high school students is not to make artists of them, but to give them the opportunity of working with various materials, and to acquaint them with the basic concepts of art. Hence, the experience gained in doing a project is far more important than the end product.

The child must learn the fundamentals of good design

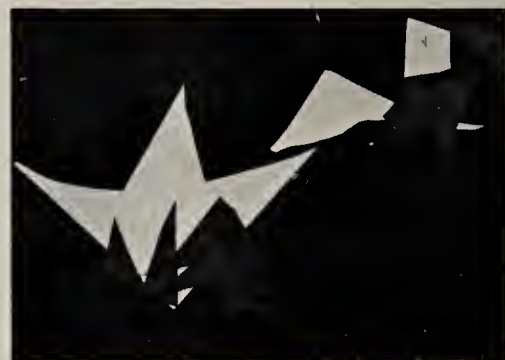


FIGURE 1

A cut-paper design, with all shapes related to the basic shape of the triangle.

A Cut-Paper Design

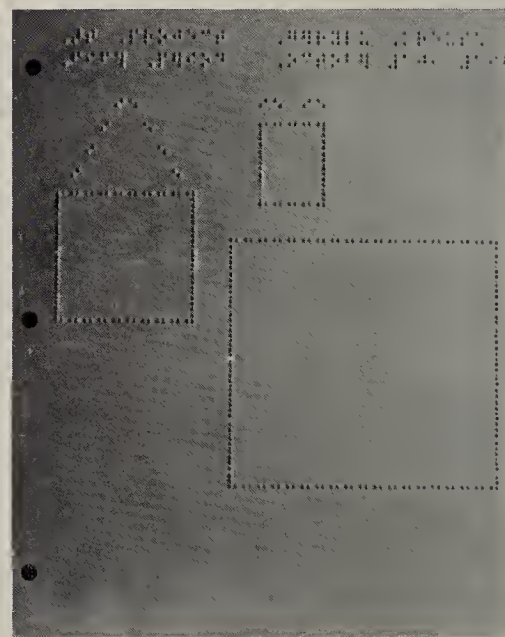


FIGURE 2

In this drawing, the shape of a house appears three times, each time in a slightly different form.

Another section of the unit on design taught students to use positive and negative shapes. The first step in this project was to make a stencil of three leaf shapes.

Figure 3 shows the stencil made by a blind student, using the braille writer and ordinary braille paper. The student simplified the leaf to the shape of a triangle, a shape which can be made on the braille writer. The student applied the principle of variety in design by making the triangles in different sizes. He cut these triangles out of the paper by following the braille dots with a straight pin. The paper could be cut only along the outline of the shape; thus, both the triangles and the sheet from which they were cut could be used as stencils.

The next step was to draw identical designs using the three leaf-shapes on two pieces of paper. On one sheet the interiors of the leaves would be chalked in, forming positive shapes, while on the other sheet only the background would be chalked in forming negative shapes. The chalking would be done using both the leaves and the sheet of paper from which they were cut as stencils.

The student first made two identical designs by placing the triangles on the paper in the desired positions, and then tracing around the edges with a tracing wheel. In order to make the designs more interesting, he carefully overlapped two shapes in each of the designs. Next, he colored one design as a negative by aligning each triangle with the marks from the tracing wheel. He used chalk to color around each triangle, forming the negative shapes. He then matched the sheet from which the triangles had been cut with the tracing wheel marks on the second paper, and chalked in the corresponding opening to form the positive shapes.

□ A blind student can also participate in drawing projects, and can gain skills through his participation. Our first drawing assignment was to draw the geometric shapes of a cone, a cylinder, and a cube. The various ways of making these two-dimensional representations seem three-dimensional were discussed and illustrated. For this project the blind student had his own set of geometric forms to examine. To create the illusion of depth, he showed three sides of the cube and curved the base of the cone and the ends of the cylinder.

The next assignment was to draw a still life arrangement. For this assignment the student was supplied with his own still life—the bottle shown in Figure 4. He was encouraged to handle and examine the bottle in order to get an idea of its intricate shape. The drawings of the bottle were done with crayon, using the screen board. The textured quality which the screenboard gave to the crayon lines enabled the student to examine his drawings and observe his mistakes once they were pointed out to him. His chief mistake was that, although he drew the circle detail in the bottle, he did not put it inside the outline of the bottle.

After making several practice drawings, the child did the drawing in Figure 5. It shows considerable improvement over the drawing in the previous photograph. The proportioning of the bottle has greatly improved, and the circle detail is now inside the outline of the bottle.

Positive and negative shapes

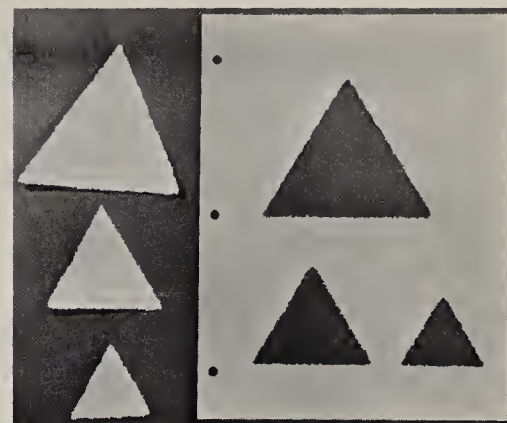


FIGURE 3
The braille writer was used to cut a stencil of three triangular shapes.

Overlapping shapes made the designs more interesting

A Simple Drawing Project



FIGURE 4
This intricately shaped bottle was used as a subject for still-life drawings.

□ Another step in the still life project was to do a drawing with India ink. This drawing was done by first wetting the paper with clear water. Then a mixture of ink and water was brushed on the paper to form the shapes of the still life. Because the paper was wet, the ink spread quickly, forming a blurred image. After this ink wash dried, an ink-line drawing of the still life was done on top of the ink wash. Figure 10 is an ink drawing done by a blind student. In order for this student to carry out the project, he had to begin with an extra step. First, a white crayon drawing of the bottle was put on the paper, using the screenboard. Because the crayon lines were textured, the child could use them as a guide for the remaining steps of the project. Following these lines, he brushed on the India ink wash. After the ink wash had dried, he followed the same lines with a piece of pointed dowel rod which had been dipped in ink (the pointed dowel rod is an excellent drawing tool for use with India ink). This project stressed variation of line quality; as can be seen in Figure 6, the blind student successfully varied the width of his lines.

□ The ink drawing project was followed by a collage project, again using India ink. Small pieces of torn white paper were dipped into an ink-and-water mixture. Because the ink was dropped on the surface of the water, but not stirred in, a marbled pattern formed on the small pieces of paper. These pieces of marbled paper were then glued onto a large piece of background paper to form a design, which was then outlined with India ink.

A blind student can also take part in painting. To do this, he must, of course, learn color theory, which is basic to all painting. A braille color wheel is helpful in teaching the concept of mixing the primary colors—red, blue, and yellow—to get secondary colors—violet, orange, and green. Also, the meaning of complementary colors can be more easily understood with a braille color wheel. However, the real meaning of red, blue, or other colors is impossible to convey to a child who has been blind since birth. Perhaps the best way to give such a child some concept of what “color” is is to make associations for the colors. For example, blue is coolness, or water, or sky. Green is grass, or leaves. Yellow and red are warmth, or fire.

Painting is difficult for the child who is blind because he cannot detect any difference in texture between the paper itself and areas of the paper that have been painted with water-base paint. The easiest way for a blind student to paint is to begin by putting a design on the paper with the braille writer. He can then paint the design by following the braille dots with a finger of one hand and following this finger with a paint brush held in the other hand. Figure 7 is a blind student's painting, which was done after the class had studied the Impressionist movement in painting. The painting clearly shows the child's understanding of the Impressionist method of applying dabs and dots of paints. After the child made the design on the braille, he followed it with the paint brush. Instead of making lines with the brush, however, he dabbed the brush up and down to form the dots in the painting.

□ Blind students participated in several print-making projects, producing excellent results. The first assignment was to make a glue print. This type of print is made by drawing a design on a piece of cardboard with white

India-Ink Drawing

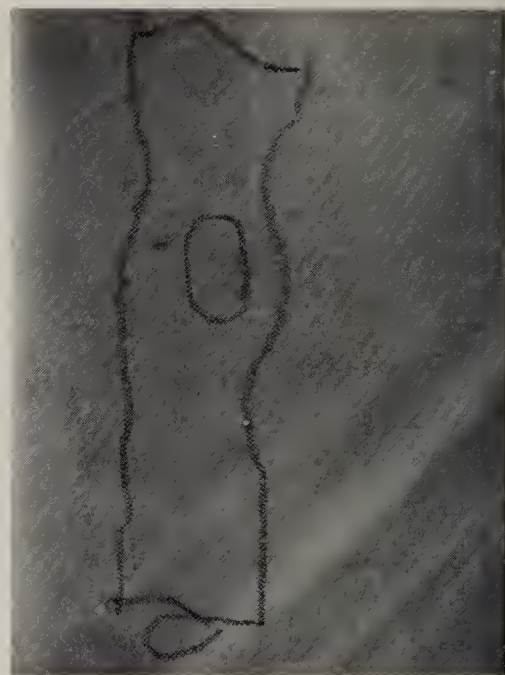


FIGURE 5

In this drawing, done after several practice attempts, the same child was more successful.

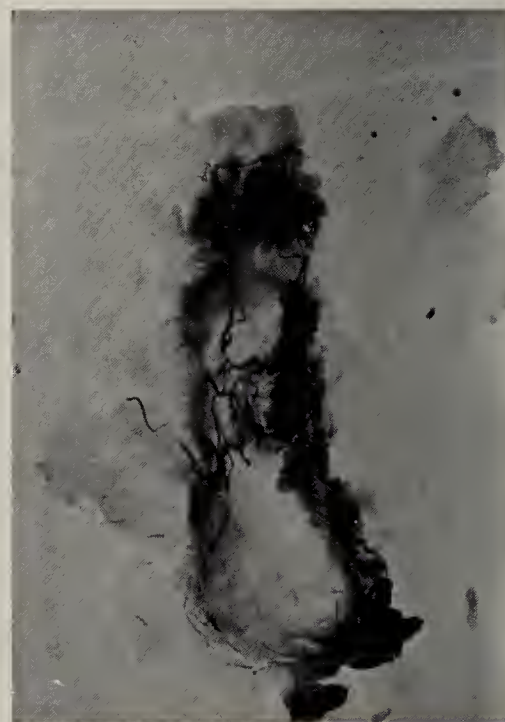


FIGURE 6

A wash-and-line drawing of the bottle, done with India ink.

household glue or rubber cement. After the glue is dry, a brayer is used to ink the cardboard with block printing ink. The ink adheres both to the glue and to parts of the cardboard surface, but not to the areas immediately adjacent to the glue—these areas remain un-inked, and this is what forms the design. When the ink has been applied, a piece of paper is placed on top of the cardboard, and a clean brayer is rolled over the paper to get a clear impression of the pattern.

These steps can be carried out quite easily by the blind child. He can usually tell when there is enough ink on the brayer because a well-inked brayer will stick slightly to the inking pan, whereas a brayer without an even coat of ink will tend to slide over it. The child may need to be told to center the paper on top of the cardboard and to touch up missed areas on the edges of the design. The brayer should be rolled over all parts of the paper in two or three different directions, so that all edges of the pattern will be distinct. It will be easiest for the blind child to print if he has his own equipment, and can keep track of his ink, inking brayer, clean brayer, and paper. Figure 8 is an example of a glue print done by a blind student.

Figure 9 shows a cardboard printing plate with the shapes glued in place. To make this plate, the student first cut out triangular pieces of cardboard adding texture to some pieces by drawing lines with a tracing wheel. It was pointed out to the child that, in a design, triangular pieces should usually point toward one another and not toward the edge of the cardboard, so that the viewer's eye will move about, not out of, the design. The child followed this principle as he arranged the shapes on the background. The prints were then taken from this cardboard by the same method used in making the glue print. Figure 10 is a print made from the cardboard surface shown in Figure 9.

□ Figure 11 shows a block of linoleum cut by a blind child for a print. The child first drew the flower design using the screenboard and a ball point pen; then he cut it out with a straight pin and taped it to the linoleum. He used a thin cutting tool to outline it. For this step, assistance was needed. However, after the design was outlined on the linoleum, the student cut out the flower petals and grass without help. A print was then made from the linoleum.

□ Our experience with these projects has shown that the blind child can participate along with the sighted child in all phases of the art education program. He can make cutout designs, collages, and prints. He can even make paintings. Moreover, he can do these things without an excessive amount of special help or special equipment. Some help, of course, is required, but it should be offered judiciously. If the child does not get enough help, he will be frustrated in his efforts to complete the projects and may come to feel that, after all, he cannot hope to compete with his sighted classmates. But if he gets too much help—either from the teacher or from his sighted classmates—he will not feel that the completed piece of art is his own.

The blind child who learns to draw and paint and sculpt acquires not only the skills of art, but a sense of confidence and mutual accomplishment that comes from doing what his sighted classmates are doing. Thus, he is happier

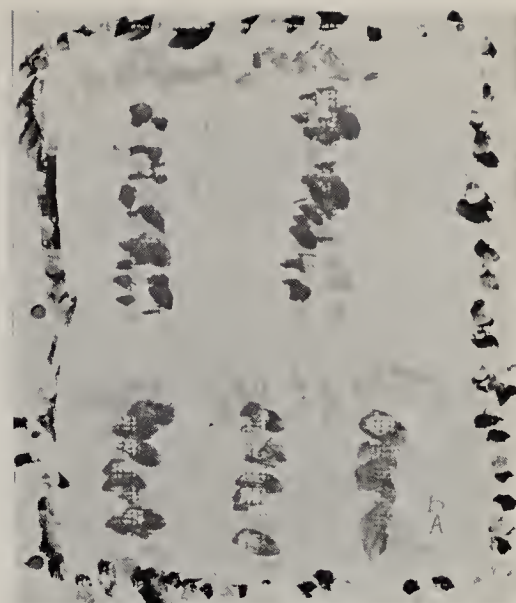


FIGURE 7

A painting done after the class had studied Impressionist painting methods.



FIGURE 8

A glue print.

with himself and feels more a part of the group. And this alone is reason enough to expend the effort necessary to integrate blind children into art classes with their sighted classmates.



FIGURE 9

Cardboard shapes glued onto a cardboard background form a printing plate.



FIGURE 10

A print made from the cardboard plate shown in Figure 9.



FIGURE 11

A linoleum block made by a blind student.

What If a Blind Person Wants to Choose His Own Career?

"Have you ever noticed how we stereotype the disabled? Let us take blind persons as an example. Why is it that so many workers with those who are visually handicapped are themselves visually handicapped? Is it because we, in our society, feel that this is the only area in which they can do a competent job? Is it because we go along with the cliché that only the blind can understand the blind? What if a blind person wants to do something which is not the 'usual' type of work? What if he rebels against having his life planned for him by others? He is likely to be told that he is unrealistic and referred to the psychologist or social worker for 'help.'

"And the psychologist's or the social worker's advice—however well-intentioned—may very well squelch the blind person's independence, which is the source of his strength."—Remarks made in a paper on career preparation for unskilled blind persons, prepared by Al Manaster, staff psychologist, Illinois State Department of Children and Family Services.

A Program of Orientation and Mobility for the Aged Blind in the Community

The purpose of the mobility training project at the District of Columbia's Department of Vocational Rehabilitation was to give high-quality mobility training to blind residents of Washington, D.C. who were not likely candidates for regular vocational rehabilitation services.

One of the biggest differences between this project and most such projects is that its base of operations was the trainee's home, not a rehabilitation center. A number of things flow from this difference.

1. In most rehabilitation centers, the instructor must gear the pace of his instruction largely to the length of the blind person's projected stay. In this project the mobility instructor could gear his instruction to the trainee's rate of progress.

2. In a rehabilitation center, mobility instruction is given in representative areas of the city or town in which the center is located, and these areas may or may not approximate the environment in which the trainee will travel when he returns home. In this project, mobility instructors began their work in the trainee's home, then moved with him into his own neighborhood, and later into other neighborhoods. This flexibility made it possible to deal more realistically with the practical needs of each trainee.

3. When dealing with older persons, it was easy to integrate limited goals, commensurate with their limited capacity, into the project operation.

☐ All candidates were screened before being admitted to training. At first, the screening was done by a team consisting of the project supervisor, the mobility instructor, and the social worker. Later on, the mobility instructor assumed exclusive responsibility for screening. During the screening process, a general estimate was made of the candidate's interest in mobility, his prior mobility training, his patterns of daily activity, his general health, his living arrangements, and his home environment. Prior information about prospective trainees ranged all the way from complete medical and psycho-social histories to nothing more than a suggestion from a friend or neighbor that a certain person needed mobility training.

Unless the early interviews showed either a lack of interest in mobility training or gross physical or emotional disorders, arrangements were made to secure general medical, ophthalmological, and audiometric data. These data were evaluated with the help of a medical consultant. If they revealed nothing that contra-indicated further consideration, the candidate's name was placed on a waiting list.

☐ It was anticipated that, among our particular group of trainees, blindness would have created problems not encountered to a significant degree among

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All Candidates Were Screened Before Being Admitted

Special Problems Were Anticipated

those receiving similar training in a rehabilitation center. Therefore, we decided to put heavy emphasis on working with the trainee as he was and where he was. We made a sincere effort to choose trainees who could benefit from the training, but did not attempt to choose only those destined to become accomplished foot travelers. We knew that extra time and care would be required with older people in order to bring them to a realistic level of proficiency with the long cane. Many of them will never travel beyond the outer boundaries of their rooms or housing complexes.

Working with residents of homes for the aged and with mental patients gave us extra yardsticks by which to measure our effectiveness. In the case of aged trainees, we could measure our effectiveness by the degree to which they became more acceptable as residents. In the case of mental patients, we could measure our effectiveness by improvement in their psychiatric status.

During the three-year span of the project, 198 persons from 17 community agencies were referred for mobility training. Of these, 61 started training and 42 successfully completed it. A person was judged to have completed training when he had achieved a level of travel proficiency commensurate with his physical, emotional, and mental capacity. Six persons were terminated or suspended short of some satisfactory level of proficiency and 13 were still in training. Forty-six were placed on a waiting list and 91 were either uninterested or physically, emotionally, or mentally unsuitable.

The ages of the individuals who were referred for training ranged from 3 to 92 years. Seventeen were between 3 and 20, 28 were between 21 and 40, 74 were between 41 and 60, 74 were between 61 and 80, and five were between 81 and 92.

The ages of the individuals who completed training ranged from 12 to 92 years. Of these, 12 were between 12 and 20, six were between 21 and 40, 16 were between 41 and 60, six were between 61 and 80, and two were between 81 and 92.

The ages of the persons who remained in training ranged from 3 to 76. Of these, five were between 3 and 20, one was between 21 and 40, four were between 41 and 60, and three were between 61 and 80.

□ Most of the aged blind persons who were accepted for our program received training with the long cane. But they were instructed to limit the use of the cane to familiar areas of travel. The instructor must exercise patience in working with the aged blind. The average client receives 45 to 60 minutes of instruction every day. With the aged blind, the daily training period should be cut to 30 or 40 minutes, and the instructor should be careful to set goals that are commensurate with the physical and mental capabilities of the client. It is not realistic to expect an aged blind person to be proficient in navigating busy intersections in urban environments. But if he is physically and mentally alert, he should be taught this skill if he wants to learn it.

We found that a majority of our aged clients wanted bus travel training. In many instances, this was not practicable. It is relatively easy to walk a blind person to a bus stop, help him onto a bus, and have a reliable person at the other end of his route who will help him leave the bus. But this sys-

Mental patients and residents

Training Period Should Be Shortened for Aged Trainees

Bus travel training was not always practicable

tem can often place an undue hardship on the people who must help him, and on the driver. Thus it makes the blind person more, not less, dependent.

Strong emphasis should be placed on training blind persons to get in and out of cars and to walk with the aid of sighted assistance. Most aged blind persons have friends or relatives who will accompany them to medical appointments. They usually take them in cars, and this provides the blind person with a chance to sharpen his skill in getting in and out of cars.

□ Many of our aged clients would fail to keep their out-patient appointments at local medical facilities, not because they were unable to move about, but because clinical and medical personnel were not properly equipped to help them move about once they had reached their medical destination. This points up the necessity for conducting in-service training programs at medical facilities to acquaint those who provide services to the blind with the basic techniques of assisting them.

Certain observations were made while rendering mobility training to residents of geriatric units in the National Capital Housing Authority and the aged blind in the community.

1. The fact that their mobility needs were limited was attributed more to age and patterns of daily living than to general health.

2. Having these individuals congregated in housing complexes made it easier to work with more trainees in less time.

3. Since the mobility goals of many were confined to traveling in and about the housing complex, seasonal extremes of weather and temperature had little effect upon training.

4. The architectural design of these housing complexes lent itself quite well to training elderly blind people.

5. Following a brief exposure to the results of mobility training with blind residents in a geriatric housing complex, the Housing Authority was noticeably more willing to accept other blind applicants. They recognized that blindness need not make a prospective tenant an undesirable risk.

6. The aged blind receiving mobility training often related better to other members of their household.

7. They felt fewer inhibitions when they were asked by their sighted peers to visit with them.

□ Looking back, we feel that the three-year project has been a success. Daily mobility instruction, combined with sensory training, is now provided to students in both public and private schools, to aged residents in residential and institutionalized settings, and to aged persons who are not capable of participating in normal agency programs. In-service training seminars at medical institutions and public schools have often resulted in more referrals and equipped both professional and medical staff to better serve the blind. Effective July 1, 1968, the mobility instruction and homebound instruction sections were merged and now offer combined community services to any person who meets our residency requirements.

Medical Personnel Should Learn to Aid Blind Patients

The Three-year Project Led to a Permanent Training Program

Twenty Questions about Mobility

Parents who are about to enroll their children in an orientation and mobility program naturally want to know as much as they can about the purpose and content of the training. In particular, they want to know how much independence and freedom of movement their children can hope to achieve. The Florida School for the Blind has developed a series of questions and answers to help alleviate anxiety and dispel confusion by providing the parents with the basic facts.—The Editors

Before proceeding to the questions and answers, let us briefly define the terms, orientation and mobility.

Orientation is the process of using the remaining senses in establishing one's position and relationship to the significant objects in one's environment . . . in other words, knowing where one is in relation to the general environment.

Mobility is the ability to navigate from one's present, fixed position to one's *desired* position in another part of the environment. It involves movement from one position to another.

☐ 1. *What is orientation and mobility training at the Florida School for the Blind? What will my child learn?*

The orientation and mobility program at the Florida School for the Blind provides individual instruction in travel skills for students who do not have sufficient vision for safe and independent travel. These students are taught skills which help them to reach their maximum level of achievement in safe and independent travel.

2. *Why do you teach the use of the long cane instead of a dog or one of those electronic devices we read about?*

Because we feel that it will benefit the greatest number of students. Dog guides are not recommended for children under 16. Electronic devices are quite expensive and still in their developmental stage. Our students are given specific facts about dog guides and other travel aids in case they should want to investigate their use in the future.

This article is reprinted from the *Florida School Herald*, publication of the Florida School for the Blind.

HERBERT D. ANGUS
BOB HOWELL
JACQUELINE LYNCH

The authors are members of the faculty at the Florida School for the Blind.

"What Will My Child Learn?"

Why the long cane?

3. *When our child has learned to travel in St. Augustine, will he also be able to travel in his home community?*

The techniques of orientation and mobility can be applied in any situation or in any city. If the child can orient himself to his surroundings, he can travel independently. At times he will need to get information from sighted persons. He is taught the kinds of questions to ask when he needs assistance.

4. *How safe is our child when he travels alone?*

Safety is related to each student's individual progress in mobility training. The majority of our students have proven themselves to be safe travelers. Your child's mobility teacher can best inform you concerning his safety.

5. *Our child does not use his cane when he is at home. Since he has had some training at school, why would he not use his cane?*

Some students choose not to use their canes at home, although the mobility program does require the use of the cane both at school and at home. When not under the supervision of the instructor, the child may have several reasons for not using his cane. If this is a problem with your child, we urge you to contact us at school so that we may be aware of this situation.

☐ 6. *I often walk with my child when we go places. I have heard that there is a proper way to do this. What is the proper way?*

The proper way to walk with a blind person is called the sighted guide technique. It provides safe, graceful, and comfortable travel for the guide and the guided. The sighted guide permits the blind person to grasp his arm just above the elbow in a firm (not constricting) grip. The blind person travels beside his guide, but remains behind at a distance of about one-half pace. The blind person gets information from the arm of his guide. Steps up or down, turns, starting, or stopping can be handled without any verbal cues from the sighted guide. When the guide places his arm across his back, the blind person knows that some kind of narrow opening is coming up. Ask your child to teach you the sighted guide technique.

The Sighted Guide Technique

7. *How much independence should we expect of our child since he is now receiving orientation and mobility training?*

Each child is an individual and generally displays the level at which he is able to function independently. Age, confidence, past experiences, and capability determine to a great degree the amount of independence to be expected. As a child learns more about what he can accomplish through applied orientation and mobility skills, he will want to become more independent. Genuine interest and encouragement toward independence helps a great deal when it comes from parents.

8. *Do the parents' attitudes toward the cane and independent travel affect the child's progress?*

Parents can hinder or help the child

The attitudes of children can be, and frequently are, the same as those of one or both parents. Progress in orientation and mobility is related to what a child feels about the cane and independent travel. Parents can hinder or help a child gain realistic attitudes about himself and his independence. Excessive fears and prejudices about cane travel can keep the child from attaining independence.

9. *How does the long cane work? Why is it long?*

The long cane is measured from the chest bone to the floor for each student. It is long enough to extend the distance of one full step in front of the user. The cane, when used properly, provides adequate warning and protection for the traveler—giving him information about the terrain before his feet contact it.

☐ 10. *Does a child who has some vision need orientation and mobility training?*

Partially Sighted Children May Still Need Travel Vision

Students who cannot travel without some form of aid are considered to lack travel vision. Even though they have some sight, these students need and can benefit from orientation and mobility training. A blindfold is sometimes used in teaching a student to rely on his other senses rather than on his limited vision.

11. *We want our child to have orientation and mobility training. How old must he be before he can enroll?*

The orientation and mobility program accepts students in grades nine through 12 on a full-time basis and below grade nine on a temporary basis.

12. *How can we encourage our child to be an independent traveler?*

How parents can encourage independent travel

You should talk with your child's orientation and mobility instructor regarding specific ways to encourage independence. Students need a great deal of encouragement and understanding from parents, houseparents, teachers, and the mobility instructor.

13. *Our child has told us that advanced students are required to travel at school. What does this mean?*

All students who have been instructed in the use of the cane are required to use it on campus. Advanced travelers are given the opportunity to travel independently off campus in the city of St. Augustine. Specific details are worked out in advance between student and instructor. Only students who have demonstrated their ability to travel safely and competently are permitted

to travel alone off campus. Only through continued daily use will the cane become a valuable tool in the life of the student.

14. *Should we contact our child's mobility instructor?*

Yes, parents should consult with the instructor at least twice a year. It is urgent that parents be aware of what is involved in training, and that they assume an active role helping to formulate plans and objectives for the student's future.

☐ 15. *How do physical fitness, posture, gait, and body awareness affect travel?*

Students who are in poor physical condition, who walk improperly, or who have poor posture or an inadequate awareness of their own body and its movements in space, do not travel well. Some students require additional help in these areas.

The Importance of a Good Physical Condition

16. *Who teaches orientation and mobility and how safe is this training?*

Formal orientation and mobility training is given by fully qualified and certified teachers who have specialized in travel of the blind at an accredited college or university. Our orientation and mobility instructors have had extensive training under a blindfold, using a cane, in a wide variety of situations. Instruction at the Florida School is individualized—one to one. The instructor works with only one student at a time, with constant consideration for safety.

17. *How does a blind person cross a street?*

A blind person is taught to cross a street by making use of the traffic sounds. Usually, the alternate lane of traffic is used as an aid or guide in reaching the opposite corner.

18. *I understand the long cane has become a symbol of independence. Is this true?*

With the increase in the number of blind persons receiving orientation and mobility training has come a greater number of independent travelers who use the cane. We find them traveling independently to and from their jobs, to places of recreation, in shopping areas, in office buildings, on college campuses, or just casually strolling in their neighborhood. The long cane is fast becoming a symbol of independence.

☐ 19. *Can a blind person be a safe and independent traveler without some form of aid?*

A Totally Blind Person Cannot Travel Without Some Form of Aid

Stories about totally blind persons traveling independently without some

form of aid are numerous. However, when the stories are checked, they usually prove to be about a partially sighted individual. A totally blind person is neither safe nor independent without some form of aid.

20. *Why should our child learn independent travel? There is always someone to take him where he needs to go.*

The ability to travel independently leads to self-sufficiency

It is necessary for blind persons to depend on sighted persons for a number of things such as travel in an automobile, matching colors when purchasing clothing, painting the house, or reading their mail—to name a few. But one's ego, self-concept, and sense of personal worth are tied to his accomplishments. Parents who deny their child (whether sighted or blind) a chance to be self-sufficient are arbitrarily limiting his chances for earning a good living and for achieving maximum happiness. There is no substitute for independent travel. Encourage your child to master it.

ARE YOU MOVING?

If you are planning to move, please let us know at least six weeks in advance so that we can insure that your *Outlook* will continue to arrive without interruption. Just fill in the blank to the right and return it to *The New Outlook for the Blind*, 15 West 16th Street, New York, N.Y. 10011. Make sure that you include your *old* as well as your new address and your zip code. If you have a label from a recent issue of the *Outlook*, attach that in the space marked "old address."

THE NEW OUTLOOK FOR THE BLIND Change of Address Form

Old address:

Name _____
Organization _____
Street _____
City _____
State & Zip _____

New address:

Name _____
Organization _____
Street _____
City _____
State & Zip _____

From the Field

From the Field is a continuing series of reports from the American Foundation for the Blind's regional consultants on new ideas and practices they have come across in their travels.

At the San Francisco State College Department of Special Education, a demonstration project has been projected dealing with the use of sound by blind children. The results emanating from the project may very well contribute to some truly new concepts and approaches in educational programs for blind children.

□ Within the confines of a sound laboratory equipped to simulate a wide variety of sound environments, a number of blind students will be exposed to various patterns of sound while being encouraged to participate, in a free-wheeling manner, in a variety of activities related to their sound experiences.

The project is unique in that its objectives go beyond the usual ones of determining how visually handicapped persons use auditory stimuli in orienting to their environments and as cues in enhancing mobility.

While some of the by-products of the project may very well add significantly to our knowledge of how blind persons use sound for mobility purposes, its basic objective is to determine the degree and manner in which auditory stimulation can set off creative activities?

It is common knowledge that a creative effort by any human being, be it the writing of a poem or story, the moulding of a piece of sculpture, the composing of a song or the construction of an architectural plan, is frequently set off by a sight, a sound, a smell, or a physical contact. In fact, there is ample psychological evidence to indicate that emotional patterns or moods, within which creativity is experienced, are stimulated by the external senses.

Since, to a blind child, auditory stimulus is the basic source of sensory intake, there is every reason to believe that he can be helped to make better use of information received through sound in the creative areas as well as in the more practical areas of orientation and mobility.

□ The organizers of the project do not claim that it will lead to a sudden explosion of blind writers, poets, and sculptors. They do believe, however, that by increasing creativity, it will provide an additional means of enhancing feelings of self-assurance and competence among more blind children and this enhancement may, in time, release them for greater achievements in all areas of life.

—Benjamin Wolf

Students Will Be Exposed to Various Patterns of Sound

How does auditory stimulation set off creative activities?

Increased Creativity Can Lead to Greater Achievement in All Areas

Letters to the Editor



Dear Editor:

The letters of Messrs. William Goodman and Carl McCoy (*New Outlook*, May 1969, p. 157) definitely deserve comment. A comparison of their major points and the article to which these letters respond ("The Long Cane in Great Britain," *New Outlook*, January 1969, p. 20) reveals some important discrepancies.

These gentlemen imply that not only Robert Crouse, author of the aforementioned article, but also the vast majority of orientation and mobility specialists are ignorant of the human element and interaction involved in teaching the principles and techniques of safe, efficient, independent mobility. We have been accused of "selling" or otherwise forcing upon others the belief that this cane, in and of itself, is a panacea for all mobility problems of the blind. Nothing could be further from the truth!

In describing the use of the long cane in England, Mr. Crouse has restated the thinking of most qualified mobility instructors—namely, that the long cane is simply a tool or device which, when used without proper professional guidance and instruction, is of little, if any, value. In praising its effectiveness, he does not give credit only to the tool itself, but rather to the "long cane method" of travel. The implications should be evident to all: Without a methodology the tool is useless.

To an educator, "method" involves much more than specific techniques and skills. The manner of presentation, an evaluation of each student's ability to comprehend such the material being taught, an honest appraisal of his needs and motivation, as well as a thorough understanding of the student's physical, emotional, and psychological stability will play key roles in the teacher's "method" of instruction. But, alas, all this is unseen and—as evidenced by these letters, often unappreciated—by the lay observer.

If the statement that the orientation and

mobility profession "ignores" or pays only "lip service" to dog guides, the high degree of mutual respect and cooperation which exists between the leading proponents of both these disciplines would never have been possible. Mobility personnel are also criticized for not promoting more extensively the "sonic aid or other electronic devices." Does such a device exist which has demonstrably proven to be 100-percent safe, efficient, and reliable as the sole mobility aid of a sightless traveler? A very few exceptional individuals have achieved such success. But for the vast majority of blind persons, such a miracle device is not presently available or affordable. Do Messrs. Goodman and McCoy really believe that for mere professional jealousy or fear of replacement, professional mobility instructors would ignore or "crusade" against the acceptance of any tool which truly meets the travel needs of the blind?

As for the statement that mobility specialists "ignore" the need and value of the sighted-guide, they should be advised that such training is strongly emphasized, not only in the training of graduate mobility instructors, but also in all properly administered programs of mobility instruction of visually handicapped persons.

Such accusations may undoubtedly be valid if directed at specific individuals, but blanket indictments of an entire profession are both dangerous and inaccurate.

Francis D. Ryan, Instructor
Orientation and Mobility Training
Department of Special Education
California State College, Los Angeles

Dear Editor:

Mr. Goodman's letter (*New Outlook*, May 1969) alludes to an unidentified group of people, both sighted and blind, who "seem to believe" that the long cane is a panacea to the blind. He refers to this group as "a number of individuals" and

"they." It might be interesting, as well as lending some validity to Mr. Goodman's criticisms, if this population were identified.

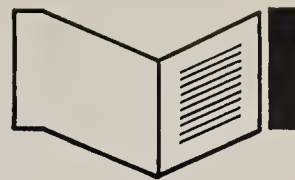
As far as ignoring other mobility devices I would suggest investigation of the current research and field testing programs of the Sensory Aids Evaluation and Development Center, Massachusetts Institute of Technology, Bionic Instruments, Inc. and Beltone Corporation. Regarding dog guides, the following statement was made in a survey report published by the Research center of the New York School of Social Work, Columbia University, 1960: "Somewhat less than one percent of the blind population were using dogs at the time of the study, and findings indicated that not more than one percent (3,268) additional blind people were physically, mentally, and emotionally qualified as dog guide users."

Concerning improvement of various kinds of canes, I refer the reader to two of the latest, though not all-inclusive, efforts in this area: Rigid Fold, 1015 Washington Blvd., Ogden, Utah 84404; and the Mark-Rod, Northwest Regional Rehabilitation Center, Seattle, Washington 98118.

Mr. Goodman concludes by quoting the last two paragraphs of Mr. Crouse's article. I propose that the preceding paragraph, which was not quoted, clearly states the intent of Mr. Crouse's purposes regarding the long cane:

"Blind persons who try the long cane method are responsible for determining its merits. The overwhelming majority of those persons who have tried the system have adopted it emphatically. No better indication of success can be given than adoption of any device or method by blind persons themselves."

Terrence R. Clark
Chief of Mobility Instruction
Mobility Training Program
Department of Special Education
California State College at Los Angeles



Seventh Sense Mobility, by Geoffrey Smith. *The New Beacon* (Royal National Institute for the Blind, 224 Great Portland Street, London W1N 6AA, England), Vol. 52, No. 620, December 1968, p. 317-321. Personal experience narrative about mobility problems encountered by the partially sighted.

Making Life Easier. *The New Beacon* (see address above), Vol. 53, No. 623, March 1969, p. 59-65. A list of special techniques that will help the newly-blinded individual to cope with the problems of everyday life. Includes hints on personal grooming, house-keeping, leisure-time activities, etc.

'Do's' and 'Don'ts' Emphasize Ways Family Members Help Blind Relative. *Perspective* (Illinois Department of Children and Family Services, 404 State Office Building, Springfield, Illinois 62706), Vol. 5, No. 1, March 1969, p. 12-14. Advice developed by staff members at the Illinois Visually Handicapped Institute.

A Self-Discovery Venture for Visually Handicapped Children, by Rosalind Wright. *The Florida School Herald* (Florida

School for the Deaf and Blind, St. Augustine, Florida 32084), Vol. 67, No. 8, April 1969, p. 9, 11. Report on a special experimental project concerned with sex education for visually handicapped fourth, fifth, and sixth grade boys and girls.

The Bridge between Light and Darkness, by Boris Sadekov. *The Chronicle* (New Zealand Foundation for the Blind, Private Bag, Newmarket, Auckland, New Zealand), Vol. 1, No. 47, December 1968, p. 19-21. Article reprinted from the *Soviet News* of October 4, 1968 concerning the work of Nikolai Semevsky, a Russian educator with 40 years experience in the teaching of blind children.

Deaf-Blind Delawarean Raises Chickens, by Eric G. Ziegler. *Performance* (The President's Committee on Employment of the Handicapped, Washington, D.C. 20210), Vol. 19, No. 11, May 1969, p. 14-16. The story of Howard Wilson of Laurel, Delaware.

A Physiotherapist Looks Back, by J. Noel Beckett. *Focus* (Dominion Association of the Blind, Inc., 27 Ayr Street, Parnell, Auckland, 1, New Zealand), March 1969,

p. 7-10. Reminiscences by a blind New Zealand physiotherapist of his difficulties in obtaining his certificate shortly after World War I.

Rubella and its Aftermath, by Janet B. Hardy. *Children* (Superintendent of Documents, U. S. Government Printing Office, Washington, D.C. 20402), Vol. 16, No. 3, May-June 1969, p. 91-96. For the past 12 years Dr. Hardy has directed the Johns Hopkins part of the Collaborative Perinatal Research Study sponsored by the National Institutes of Health. The material in this article was gathered during the study.

The Effectiveness of Structured Sensory Training Experiences prior to Formal Orientation and Mobility Instruction, by Robert J. Mills and Donald R. Adamshick. *Education of the Visually Handicapped* (1839 Frankfort Avenue, Louisville, Kentucky 40206), Vol. 1, No. 1, March 1969, p. 14-21. A progress report covering two years (1966-1968) of special training classes conducted at the Ohio State School for the Blind in Columbus, Ohio.

—M. M. R.



■ The certification committee for orientation and mobility specialists of the American Association of Workers for the Blind is accepting applications for the certification of mobility specialists. Persons wishing an application form should write to Mr. Stanley Suterko, Chairman, Committee for Certification of Orientation and Mobility Specialists, Western Michigan University, Kalamazoo, Michigan 49001.

■ The Second Louisville Conference on Rate and/or Frequency Controlled Speech will be held October 22-24 at the University of Louisville. The program will include reports on the perception of time and/or frequency controlled speech, and reports on practical applications of such speech. Because of limited space, it will be necessary to restrict attendance. Those wishing to attend the conference as observers should write to Dr. Emerson Foulke, Department of Psychology, University of Louisville, Louisville, Kentucky 40208.

■ The Brooklyn (New York) Bureau of Social Service and Children's Aid Society has changed its name to the Brooklyn Bureau of Community Service. The change became effective May 15, 1969.

■ The private papers of Helen Keller—including correspondence with hundreds of national and world leaders from two centuries—were bequeathed in her will to the American Foundation for the Blind. The papers are now being catalogued and may eventually be available to researchers and scholars.

■ By proclamation of President Nixon, the week of June 1, 1969, the first anniversary of Helen Keller's death, was observed throughout the United States as

Helen Keller Memorial week. In addition to the presidential order, proclamations and statements honoring Miss Keller were issued by the governors of 33 states.

■ Dr. Robert Morris and Mr. Garson Meyer have been named to head the American Foundation for the Blind's National Task Force on Geriatric Blindness. Dr. Morris is professor of Social Planning at Brandeis University; Mr. Meyer has served several terms as president of the National Council on Aging. The aim of the Task Force is to analyze and assess information on geriatric blindness and determine a course of action to be coordinated at national and local levels.

■ Irving Geist has received the 1969 Citation for Outstanding Contribution to International Goodwill presented by the People-to-People Committee for the Handicapped. Mr. Geist, long active in philanthropic activities, established the Harry S. Truman-Howard A. Rusk-Irving Geist Fund in 1969 to enable the Committee for the Handicapped to increase international cooperation in the field of vocational rehabilitation.

■ *Forgotten Children—A Program for the Multihandicapped*, reports on a total program designed to coordinate all forces in the education of the cerebral palsy-blind child. The report was prepared by Merle E. Frampton, Ellen Kerney, and Regina Schattner on behalf of the New York Institute for the Education of the Blind. The 288 pp. book is available for \$6.95 from Porter Sargent Publisher, 11 Beacon Street, Boston, Mass. 02108.

■ A bibliography of all fiction, plays, films, and television programs dealing with blind or partially sighted persons is being compiled by Dr. James F. Magary, University of Southern California, Los Angeles 90007. He invites readers to send him any titles they know of that might fit in the bibliography.

■ A newly compiled bibliography on deaf-blindness is available from Prof. Dr. E. Beschel, Schriften zur Sonderpädagogik, D 4600 Dortmund, Federal Republic of Germany, Lindemannstrasse 80, or from the Alexander Graham Bell Association for the Deaf, 1537 35th Street N.W., Washington, D.C. 20007. The price is one dollar.

■ The Association for Computing Machinery Committee on Professional Activities of the Blind will hold a three-day workshop and meeting October 9-11, 1969 in Cleveland. The conference will involve blind computer programmers, their employers, members of rehabilitation agencies, and support groups. It is open to anyone wishing to attend. Those interested should write to the Committee Chairman, A. F. Collard, Eastern Airlines, Inc., Miami International Airport, Miami, Florida 33148.

■ Wilbur J. Cohen, formerly secretary of Health, Education, and Welfare and now professor and dean-designate of the School of Education, University of Michigan, has been named president of the National Conference on Social Welfare.

■ The Board of Directors of the New York State Federation of Workers for the Blind, Inc. has authorized changes in the federation's constitution and by-laws which will enable it to become the New York Regional Group of the American Association of Workers for the Blind. The membership will have the opportunity to vote on the changes at the federation's annual conference in October.

■ Newell E. Freeman, a former president of the American Council for the Blind, who also served as an ACB vice-president and editor of the *Braille Forum*, died March 30 in Atlanta. In 1965, Mr. Freeman took part in the discussions leading to the COMSTAC report, which established standards for services to the blind. At the time of his death, he was president of the Georgia Federation of the Blind.

■ Karen Gearreald, blind since birth, has been named chairman of the English Department of the Hadley School for the Blind, Winnetka, Illinois. Miss Gearreald recently received her doctorate from Harvard University.

■ The 1969-1970 edition of *Federal Aid for Schools*, a 400-page guide published by the Macmillan Company, contains information on 28 areas in which programs for training handicapped children can obtain federal aid. It also contains step-by-step accounts on how to get more federal aid and how to write effective proposals.

■ *Music Journal* has been added to the list of magazines available on records through the Library of Congress' Talking Book program. The publication, which is issued 10 times a year, features articles by musicologists, composers, and conductors on a broad range of musical subjects. It also includes reviews of books and records and news of musical events. Eligible readers interested in receiving *Music Journal* on records may write to Mary Mylecraine, Music Services Unit, Division for the Blind and Physically Handicapped, Library of Congress, Washington, D.C. 20543.

■ John D. Twiname has been named deputy administrator of the Social and Rehabilitation Service, U.S. Department of Health, Education and Welfare. He was formerly marketing vice-president of the American Hospital Supply Corporation.

Jim L. Coursey has been appointed manager of the St. Louis branch of the Skilcraft Division, National Industries for the Blind. The division markets blind-made products on specially designed racks in supermarkets. Mr. Coursey, who joined Skilcraft in 1967, had been senior salesman in the St. Louis branch before assuming his present position.

Coming Events

Sept. 6-12 International Seminar on Vocational Rehabilitation, Galway, Ireland

Sept. 9-12 International Seminar on Special Education, Cork, Ireland

Oct. 22-24 Second Conference on Rate and/or Frequency-Controlled Speech, Louisville, Kentucky

Nov. 5-14 World Council for the Welfare of the Blind, General Assembly, New Delhi, India

Nov. 20-22 National Society for the Prevention of Blindness, Annual Meeting, New York, N.Y.

Dec. 5-6 National Social Welfare Assembly, New York, N.Y.

Errata

In the article, "The Machine Conversion of Print to Speech: Two Papers," by Jane H. Gaitenby (*New Outlook*, April 1969), the following two errors should be noted:

In the second sentence of paragraph two, page 115, the phrase "work units" should read "word units."

In Figure 1, page 118, the legend in the circle farthest to the right should read ADJECTIVE (Medium stress, rising) not "ADJECTIVE (Medium stress, falling)" as it was printed.

In the article, "Vision Rehabilitation for Aged Blind Persons," by George Hellinger, O.D. (*New Outlook*, June 1969) the following error should be noted: The last sentence of the fourth paragraph on page 176 gives 200,000 as the number of persons added each year to the caseload of newly blind persons. The figure should be 40,000.

The Making of a Blind Man

by Robert A. Scott

This pioneering study was undertaken in order to discover more about the processes by which people who have a serious or total loss of vision learn to play the role of blind person. The basic theme of the book is that the attitudes and behavior characteristic of many who suffer impaired vision are socially acquired and not inherent in their physical condition. A part of this socialization occurs when the person who has vision trouble interacts with the seeing world in the encounters of everyday life. Another part of it occurs in organizations for the blind, and the book describes the effects upon blind people of the 800 agencies, organizations, and programs for the blind in the U.S.

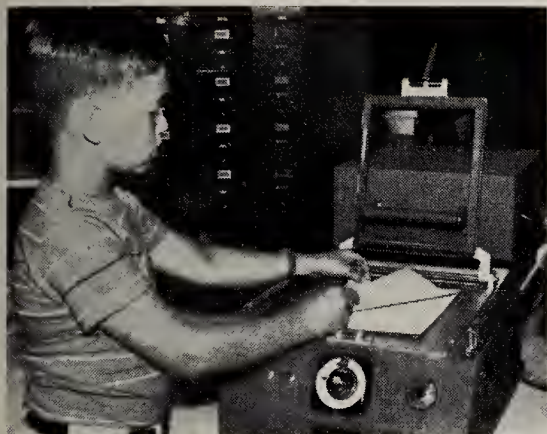
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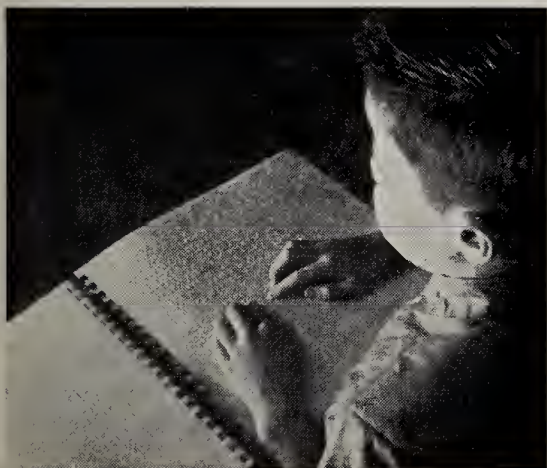


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Grayscale Configurations

Patrick J. Flanigan, Ph.D., Elizabeth S. Joslin, M.S.

Development and Testing of the Caster Cane
Marion Foulke, Ph.D.

THE NEW
Outlook
FOR THE BLIND



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A Practical Knowledge of Color for the Congenitally Blind

Anyone who has tried to describe an unfamiliar object to a blind person knows that the terms of description must be confined to two areas: 1) words and concepts already in his frame of reference from previous experience, and 2) new words, concepts, or sensations that can be demonstrated to him, and thus made meaningful. It is difficult, then, to make meaningful the phenomenon of color to a person who is totally blind from birth, for he has neither the previous experience with color perception, nor the opportunity to experience it. The "color experience," however, consists not only of the physiological process of perception, but also of the related processes of association, incorporation, and retention. While the congenitally blind person does not have the primary experience of color perception, he can combine the experiences of association (one thing bringing to mind another), incorporation (an object or value taking on personal relevance), and retention to develop a meaningful concept of color. This blind person, therefore, has an excellent foundation on which to base an integrated and useful appreciation of color. He is capable of learning *about* color, of utilizing the kinds of consistent associations which are made by sighted persons, of forming his own associations based on these secondary experiences with color, and of integrating all of this information into his general knowledge.

□ We know that color can be indicative of mood and emotion, or of other more physical sensations. We speak of colors as being "happy," "soft," "hot," etc., not arbitrarily, but because colors really do seem to convey these qualities. Color is dynamic. Not only does the passive existence of color in the world make life more interesting, but color can actively affect us—can stimulate, soothe, or disgust. Expressions that are a part of everyday speech, such as "seeing red," and "feeling blue"—are proof, in fact, that sighted people often have consistent reactions to colors.

Not all color symbolism is universal. The color associated with mourning, for instance, is black in the western world, but white in many eastern cultures. Even within a single culture, there may be subcultural or individual variations. However, within our western culture, more specifically, within the United States today, there exist enough common associations to allow us to generalize about color affect. It is this that makes it possible for a person who cannot perceive color to learn to associate the words which represent colors with moods, emotions, and sensations which are within the scope of his primary experience, in a way which will make color meaningful to him.

On the following pages, I have tried to provide reference material concerning colors, their affects and qualities, and their practical applications,

JANE G. WHEELER, O.T.R.

Miss Wheeler is supervisor of occupational therapy, the Industrial Home for the Blind, Institute of Rehabilitation, Jamaica, N. Y.

Color Can Stimulate, Soothe, or Disgust

A basic awareness of color symbolism and association

for those blind individuals who are motivated to attain a degree of control over the color aspect of their environment. No attempt has been made to enable the blind person to understand what color is, technically, and information on the physiological process of color perception has been deliberately omitted. Hopefully, a basic awareness of simple color symbolism and everyday color associations will establish within the blind student a sense of the propriety of colors, and a realization of their significance, which in turn will contribute to his independence in such areas as wardrobe planning and purchasing, decorating, sewing, meal planning, and grooming.

This material is also intended as a source of ideas and suggestions to guide instructors of the blind in their approach to the rather elusive—and too often neglected—subject of color, and to assist them in demonstrating that color cannot be arbitrarily chosen, or indiscriminately used.

□ Before approaching each basic color as an entity, it is necessary to provide both teacher and pupil with information about the general properties of colors, thereby indicating their interrelationships and infinite variety. Just as any object can be measured by its width, depth, volume, etc., each color can be measured and identified by certain dimensions. It is these dimensions which constitute the underlying principle of color.

The dimensions of color are *hue*, *value*, and *intensity*, and each is measured differently. It is these dimensions which identify an individual color.

Hue is simply another word for color; the two terms are interchangeable. Red, blue, and green are hues. Many colors are mixtures of two or more hues, and are named accordingly (e.g. "olive-green"—really yellow-green).

Value indicates the amount of light or dark in a color. As a basis, consider white to the lightest color, and black the darkest one (technically, white and black are not colors, but for practical purposes, it is convenient to think of them as such). In order of brightness value, from lightest to darkest, the colors are: white, yellow, orange, red, green, blue, purple, brown, and black.

Thus, each color has a brightness value in its pure form as compared to the other colors, but each color can also have a variety of values within itself. Values within each color cannot be judged without considering black and white. To change the value of any color, one can lighten it by adding white (called a pastel or a tint), or darken it by adding black (called a shade). Baby blue, then, is a very light tint of pure blue, and is made by adding a large amount of white to the pure color. Navy blue is a very dark shade of blue, made by adding a large amount of black to the pure color. In general, lightening a color by adding white to it makes it less strong, less vivid, and less conspicuous. As a color approaches white, it tends to blend more easily with other colors, even those with which it would clash in its pure form. Pastels of most colors are often considered more feminine than masculine, and further, are associated with warm seasons and climates.

In the same manner, colors which have been darkened by the addition of black tend to become less vivid and more blendable, but are generally considered appropriate to masculine taste and suitable in colder climates.

Intensity, as applied to color, means brightness or dullness, strength or

The General Properties of Color

Values must be judged in relation to black and white

Adding gray lowers the intensity

weakness. When a color appears to be strong and bright, it is in its purest form, at its fullest intensity. The intensity of any color can be lowered by adding gray. Grays are made of various combinations of white and black; the larger the amount of gray added, the lower the intensity, and the more muted, dull, or weak the color will appear. When a gray made up of 90 percent white and 10 percent black is added to a color, the result will be a slightly muted pastel. If however, the gray which is added is only 10 percent white and 90 percent black, the result will be a slightly softer dark shade than if black alone had been added.

Considering all the possible combinations of black and white, and further, the mixtures of these grays with the basic colors, the mixtures of black or white with each color, and the mixtures of the colors themselves, one can imagine the infinite number of possible shades and tints, and the difficulties which would be encountered in trying to sort them all into some kind of order, or in applying any inviolable rules to their use. Any of the statements or suggestions made in the following discussion, though perhaps true in general, can, and often do, have exceptions.

□ There are three hues which are elementary because they cannot be produced by mixing the other colors; all other colors are produced by mixing these three in various combinations, or by adding black and/or white. These *primary colors* are red, yellow, and blue. When mixed in pairs as follows, the *secondary colors*—orange, green, and purple are formed:

Red + Yellow = Orange

Yellow + Blue = Green

Blue + Red = Purple.

The primary colors and the secondary colors are considered the six *basic colors*. When any two of these are mixed, they produce the intermediate colors, such as red-orange, and blue-green. In the following discussions of the basic hues, keep in mind that unless otherwise stated, the pure hue is the one under discussion, and that the effects and characteristics attributed to each pure color would also apply to the tints and shades of that color, but would be weakened by the additions of white, black or gray, just as the addition of amounts of water would dilute, but not change, the flavor of a soup.

□ Yellow is the color of sunlight, gaiety, laughter, and energy. It is an attention-getter, a stimulating color as well as a happy one. Its eye-catching quality is evidenced by the fact that subway stairs and platform edges are painted yellow to stand out in the dimly-lit underground stations, and by the phrase "yellow journalism," an expression meaning the use of sensational front-page material to attract attention. Some say that, with the color yellow around, a person tires less easily; the walls of schools, offices, and factories are frequently painted a tint of yellow to induce good, steady work habits, and to prevent boredom. On the other hand, the invigorating, stimulating characteristics of yellow may prove quite tiring to someone who is ill or who wishes to rest. Accordingly, elderly people seldom wear yellow, but it is a favorite among the young and active. Yellow can be used in decorat-

Primary, Secondary and Basic Colors

Yellow Is the Color of Sunlight

ing a room such as a kitchen, to make it bright and cheerful, yet too much bright yellow in a bedroom, which should be quiet and restful, might be a poor choice. The popular tints and shades of yellow are: gold (darkest), mustard, goldenrod, pure yellow, lemon yellow, pale yellow, cream (lightest). Typical yellow-colored foods are: banana, lemon, grapefruit, egg yolk, butter, margarine, wax beans, corn, mustard, pineapple (inside), pear, honey. Other yellow-colored objects are: sun, daffodils, dandelions, canaries, blonde hair.

□ Red is the color of love, passion, and anger; it is hot, vivid, and restless. The red in the United States flag symbolizes courage and love of country, and red is generally used in valentines. It is also a color associated with danger; it is universally used to mean "Stop!" It was traditionally believed that the red tape waved by the matador infuriates the bull, and we often say of an angry person, "He sees red!" Red is seldom used in much quantity in decorating, although it is often relied upon as an accent with less strenuous colors. It is a youthful color, and is frequently used in clothing, except for the elderly. Pink, a light shade of red, is common in decorating and in clothing for all ages, as it still conveys the warmth of red, but is much softer and less commanding. Pink is very feminine, and rarely used by men. The popular shades & tints of red are: wine or maroon (darkest), cranberry, scarlet, pure red, cherry, rose, pink (lightest). Typical red-colored foods are: tomato, pimiento, paprika, cherry, strawberry, raspberry, cranberry, red wines, raw beef, red pepper. Other red-colored objects are: blood, stop lights and stop signs, rubies, most lipsticks and nail polishes (red and pink), sun-burned skin, wounds, brick, fire engines.

□ Blue is cool, calm, dignified, and reserved. It signifies truth and wisdom. In the United States flag, blue indicates loyalty. Its mood, however, can change with its intensity. The clear, bright blue of a summer sky suggests contentment; the pastel "baby blue" is delicate and sweet; the blue-gray blend of the sky on a rainy day is cold and depressing, and when a performer "sings the blues," it is this sad, apathetic shade of blue that he refers to and feels like. The low-intensity blues (gray added) are rather dependable and business-like. The deep navy-blue of a sailor's suit; the dignity of the blue business suit; the authority of the dark blue police uniform—all command respect and give an impression of sobriety and seriousness, though not of unpleasantness. Because the pale blues (tints) are delicate, restful, and quiet, they are preferred by the elderly, and for infants; bright blues are suitable for clothing of all ages; darker shades are generally preferred by older people. Light blues are often used for decorating bedrooms, for a restful effect, while the brighter are popular for living rooms and formal settings. The shades and tints of blue are: navy blue (darkest), dark blue, medium blue, pure blue, loden blue, sky blue, baby blue (lightest).

Typical blue-colored foods are: blueberries, which are medium blue when fresh, red-purple when cooked; and blue cheese, which contains blue mold lines. A clear sky is blue, as are sapphires.

□ Green is a mixture of the gaiety of yellow and the dignity of blue. It is the color that predominates in nature, and frequently symbolizes new life.

Red Is the Color of Love

Blue Symbolizes Truth and Wisdom

Green Is the Color of Nature

When someone is new at something, we say that he is "green," indicating innocence and lack of experience. And, since green is not present in normal skin tones, we can indicate that a person looks ill by saying that he looks "green around the gills," although green is not really present in his coloring. The darker shades of green are cool and mysterious, like the damp, dark, rich smell of a deep pine forest; the lighter shades are warmer and more active, like the humid and noisy tropical jungle. In general, it is a restful color, and, as a pastel, is often used in hospital rooms and bedrooms. It is a popular decorating color, being neither depressing nor stimulating. It is also used in all shades and tints in clothing for all ages, though the pure, bright greens are most commonly used by youthful, active people. The common tints and shades of green are: dark green (darkest), forest green, leaf green, pure green, kelly green, apple green, mint green (lightest).

Typical green-colored foods are: lettuce, cabbage, green beans, peas, broccoli, limes, green pepper, cucumber skin, unripe olives, avocado, watermelon rind, pickles, green grapes. Most grasses, leaves, and stems are green.

□ Purple is a color of royalty and majesty; a color which commands reverence and respect. The dignity of blue and the emotional qualities of red combine to produce this color of wealth, splendor, and sometimes, mystery. It has a strong sense of awesome authority in its darker shades, and in general these are reserved for formal occasions. The medium shades are more wearable and less powerful, but still not very popular for everyday clothing, and decorating. The pastels, such as violet and lavender, are neither regal nor powerful, but once were characteristic of the calm, quiet frailty of the very old, very fragile, or very feminine. Even so, it is still not a becoming color for most people to wear, but is often used in decorating very frilly, feminine rooms. Purple in general is associated with the twilight hours, and it has a solemn, somber attitude, it is commonly used in funerals to evoke both sadness and reverence, and is appropriate to the emotions present at such occasions. The shades and tints are: deep purple (darkest), royal purple, plum, pure purple, orchid, violet, lavender (lightest). Typical purple-colored foods are: plum, concord grape, eggplant (skin), some onions, turnips (skin), some cabbage. Other purple-colored objects are: orchids, violets, lilacs, iris.

Purple Is the Color of Majesty

□ Orange is an adventurous color, a mixture of red's courage and yellow's gaiety. A color of health and vigor, with courageous, expansive qualities, pure orange is active, loud, and physical. Because of its tremendous activity, it can be extremely tiring if used in large quantity, but in small quantities, it will brighten up the darkest corners of a room, or provide an excellent accent for a dark dress. A fiery, devilish color, it is associated with Hallowe'en, and mischief. The darker shades of orange lose the wild activity of the pure hue, but are still very lively, and are popular in both decorating and clothing. These darker shades approach brown, and become more amenable to mixing with other colors. The tints and shades of orange are: rust (darkest), burnt orange, tangerine, pure orange, apricot, peach, nude or flesh (lightest). Typical orange-colored foods are: oranges, carrots, yams, apricots, peaches, tangerines, winter squash, kumquats. Other orange-colored objects are: pumpkins, red hair.

Orange Is an Adventurous Color

□ Brown is really part of the orange family, but has so many variations within itself, and loses so many of orange's distinctive qualities, that it is best to consider it as a separate color—a neutral like black and gray. Brown is the color of earth—rich, dark, healthy, and vital. It is an autumn color, and popular for clothing for all ages, and is a natural for decorating since most woods are brown. It blends well with nearly every other color, but best with red, orange, and yellow. It is a fertile, rugged, outdoor color. The shades and tints of brown are: dark brown (darkest), chocolate, cocoa, pure brown, camel brown, tan, beige (lightest).

Typical brown-colored foods are: potato peel, cooked meat, fried foods, bread crust, cereals, brown sugar, coconut shell, figs, dates, caramel, coffee, nuts, maple syrup, chocolate, onion skin, cinnamon, whiskey, nutmeg.

Other brown-colored objects are: most wood, most natural leather, bark of most trees, dirt, sun-tanned or negroid skin, some skin moles, freckles, brunette hair.

□ Black is the color of night—mysterious and somber. It can also be dignified and rich. When used over a large, unbroken area, or in any great quantity, it can be severe and depressing; it is the traditional color of mourning in western cultures, and a symbol of sadness, loss, and tragedy. Yet, it is unequalled for its startling contrast to the other colors, especially the brighter colors and white, and is thus a popular and important color for clothing, though not for children. A predominance of black in an outfit of clothing has a slenderizing effect, and in both clothing and decorating, suggests severity and seriousness, and should be reserved for formal or serious occasions. In combination with other colors, however, it is extremely common, useful, and dependable, and often considered a "must" in a basic wardrobe. The potential ominous and evil qualities of black are evident in sayings like "black mood" and "black magic," and in the superstition that a black cat crossing one's path means bad luck. Black has no variety of shades—it always appears very dark. However, variations in the surface texture can alter its appearance slightly; a shiny, smooth, glossy finish can brighten it up, as it causes reflection of light, while a dull, textured surface can emphasize depth and darkness.

Typical black objects are: coal, charcoal, ebony, onyx, wasps, crows, ants, black keys on a piano, burnt objects.

□ Gray is a mixture of black and white, a neutral color, rather dull and quiet. In fact, it usually has so little personality of its own, that it not only blends with any other color, but actually needs another color to prevent a dull, dreary effect. When mixed with a small quantity of another color, it takes on some of the personality of that color; among some of the favorite blends are "blue-gray," and "rose-gray"—an adjective often used to describe such colors is "dusty." When gray appears alone, it may connote conformity (the gray flannel suit), conservatism, or lack of personality. It can also contribute, however, to the distinguished look that is associated with gray hair. Men's business suits are often gray, as are women's business clothes, but it is generally inappropriate for children's clothing. Gray is used in decorating as a background color.

Brown Is a Rugged, Outdoor Color

Black Is Mysterious and Somber

Gray Is a Quiet, Neutral Color

The popular shades and tints are: charcoal gray (darkest), gunmetal gray, steel gray, pure gray (half black, half white), light gray, silver gray, bone (lightest).

Typical gray-colored objects are: fog, storm clouds, cement, aluminum, and many other metals.

□ White is the color of innocence, purity, holiness, peace, and cleanliness. It is light and airy, fresh and clean, crisp and efficient. The flag of truce is white. Doctors and nurses dress in white uniforms of cool, crisp efficiency. Brides wear white as a symbol of purity, and white is used in clothing for all ages, alone or in combination and contrast with the other hues. It is widely used in decorating, in small areas for contrast and in large areas to create a look of light and spaciousness. The implicit goodness of white is evidenced by such terms as "white magic" and "white lie," which indicate that white can overshadow the inherent evil of an act. White has no shades, though frequently, when used over a large area, such as a wall, its glaring brightness is softened to an "off-white" by the addition of a small quantity of black, blue, or brown.

Typical white foods are: the insides of potatoes, egg white, white onions, rice, salt, sugar, milk, white bread (except crust), inside apples, coconut meat, cottage cheese, cream cheese.

Other white objects are: teeth, white piano keys, toothpaste, cigarette paper, aspirin, sterile cotton, bandages, unpigmented hair.

□ The following is a summary of the "personalities" of the colors, written for use with children. It has been used with some success, alone and conjunction with other teaching techniques, to develop some feeling for color, and some motivation for studying the subject. To implement the verbal descriptions, one might compare each color to certain types of texture, sound, or physical motion. With young children, this technique enables them to form more concrete associations to the "affect" of a color. One must be careful, however, to avoid fostering misconceptions such as the following: "If red is like the sound of a blaring trumpet, then all trumpets are red."

Red says: I am bright, hot, and loud. I'm used for stop signs and stop lights, because people can see me from a long way off. Wear me when you feel full of energy, because I like to move around and make noise. When I am mixed with white, I turn into pink, and that calms me down and makes the girls like me. They use me for lipstick and nailpolish, but everyone knows me in tomatoes, strawberries, and fire engines.

Orange says: I, too, am bright, active and noisy, but not as common as red. People get tired of me very easily, and only use me in small quantities. I have a lot of fun, especially at Halloween, because I like to get into mischief. I'm sometimes hard to get along with, and I like a good fight with purple and red, so don't put us together. You'll find my tangy flavor in oranges and tangerines.

White Is a Symbol of Goodness

The "Personalities" of Colors

Red is hot, bright, loud

Patterns of Response in the Perception of Braille Configurations

The report of the AAWB-AAIB Joint Uniform Braille Committee to the 1958 American Association of Instructors for the Blind stated: "There are many who have considerable misgivings about Standard English Braille, Grade II, as it stand today."¹⁷ The report suggested that educators and researchers attempt to improve the existing system in a number of ways, by among other things, conducting studies in the rate of braille reading and applying techniques of programmed instruction to the teaching of braille.

Both the classroom teacher and educational researcher should be concerned with slowness in practicing braille configurations, for they are extremely important to development of braille skills. A major link in the total reading process is the relationship of sensory and perceptual discrimination variables relevant to the process.

□ This study was undertaken to examine the relationship between the interval from stimulus presentation to response, as indicated by discrimination of the stimuli on a programmed tachistoscopic instructional device. Another purpose of the study was to determine the effect of a remediation program upon this relationship and upon the consequent speed of reading standard braille materials. The length of the interval between stimulus and response, along with notable differences from previous research in the rank order of difficulty in individual letter perception.

Twenty-seven Subjects were selected randomly from the student population at the Wisconsin School for the Visually Handicapped. They ranged in chronological age from 110 to 212 months, in mental age from 93 to 269 months, in grade placement from 3 through ungraded high school (approximately grade nine level), and in measured IQ from 65 to 144. Table 1 includes data description of the experimental group and of the control Ss—i.e., those subjects who were not exposed to our devices.

All Ss were used to establish normative data in phase 1 of the study; later they were randomly divided into experimental and control groups for phase 2, the remediation phase. During phase 1, the experimental group was treated on the programmed learning device, the tachistoscopic device mentioned earlier; the control group received an equal amount of treatment with traditional braille materials.

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Purpose of the Study

Control group used special device

TABLE 1

Means, Standard Deviations, and Ranges of Chronological Ages, Mental Ages, IQ's, and Grade Placement of Experimental and Control Groups

Group	N	Chronological Ages (months)			Mental Age			IQ			Grade Placement		
		Range	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD
Experimental	13	110-212	153.15	28.63	109-232	155.92	37.61	65-144	103.69	24.85	3-9	6.15	1.98
Control	13	114-205	158.77	26.38	93-269	162.92	35.05	67-140	97.92	21.51	3-9	6.46	1.94
		$(t = <1, p> .05)$			$(t = <1, p> .05)$			$(t = <1, p> .05)$			$(t = <1, p> .05)$		

The study was divided into two phases. The ultimate objective of phase 1, the presentation phase, was the identification of an optimal range of perception time for use in phase 2. Normative data on (1) the relationship between stimulus presentation time and number of errors and (2) the variation in error count for each letter would lead to a rank order of difficulty for the 26 letter configurations. It was hypothesized that, as stimulus presentation time decreased, number of errors would increase.

□ Before the experiment began, Ss were introduced to the device and allowed to examine each component and its operation. After this, S had contact with the presentation unit only. In program 1, the implementation of phase 1 (96 random order letters, described later), stimulus presentation time was varied on 10 trials from 1 sec to 0.1 sec in decreasing order. Readiness and response intervals were arbitrarily held constant at 4 and 6 sec respectively. During this phase, the Experimenter advanced the program after errors, rather than allowing the missed letter to be re-presented. Each S received one trial a day for 10 days. Four Es worked with the Ss without regard to continuity of experimenter-subject combinations. Two Ss were run simultaneously on two identical machines in the same room. There was, however, no competition between Ss. No verbal encouragement, discouragement, or reinforcement was given by the E. At the end of each trial the S was thanked. An individual record of the errors made on each trial was kept for the 27 Ss. Program 2, the remediation program, was developed from the raw data of program 1.

Phase 2 employed 26 of the 27 Ss, randomly divided into two groups of 13, one experimental and one control. The groups were formed by taking a list of the Ss in alphabetical order by grade level and assigning every other S to the experimental group beginning with S 1. One S was dropped because of illness.

In program 2 (151 braille configurations, described later) each S in the experimental group received nine 15-min training periods on the discrimination machine. Program 2 was used during each period; if completed before the end of the training period, it was repeated. The settings for the readiness and response intervals were again held constant at four and six sec respectively.

How the Tachistoscopic Device Was Used

Stimulus presentation times during the experimental treatment periods were as follows:

- a. remediation periods 1, 2, and 3-0.3 sec
- b. remediation periods 4, 5, and 6-0.2 sec
- c. remediation periods 7, 8, and 9-0.1 sec

□ Stimulus presentation times were chosen during the remediation phase on the basis of the data from phase 1, which showed the lowest mean proportion of errors for the total group to occur at 0.6 sec, and the greatest mean proportion of errors to occur at 0.1 sec. On this basis we decided to remediate at the three most difficult times—0.3 sec, 0.2 sec and 0.1 sec; it was anticipated that improved discrimination at these speeds would produce improvement at slower presentation speeds. On the same basis, and because the 0.3-sec time setting was halfway between the setting at which the mean proportion of error was the least and the greatest, the data from the 0.3-sec presentation time of program 1 in phase 1 were selected as the pretask criterion measure and the program was repeated (presentation time, 0.3) as a posttask measure.

Verbal presentation of the remediation program to experimental Ss was similar to that used in phase 1. S was asked at the beginning of the period not to talk and was given no verbal reinforcement, either positive or negative. One major difference in the operation of the experimental device was that, whereas during phase 1 the E advanced the program upon receipt of an erroneous response, during phase 2, when an incorrect response was registered, the same stimulus configuration was re-presented automatically by the device until a correct response was elicited. If S exceeded the arbitrary limit of 10 consecutive errors on a single configuration, E advanced the program to the next configuration.

Control Ss used in phase 2 also received nine timed 15-min training periods. This group used the same materials utilized in constructing program 2, except that they were prepared in traditional braille form on thermoplastic film (Brailon). Procedures utilized in initiating the control group's treatment were the same as those experienced by the experimental group which used the automated device. At the end of the 15 min period E would say: "You may stop now, that is enough practice for today." Control Ss received no reinforcement during their treatment periods; however, if they were not attending for several minutes, E would say: "This is your time to practice letters; keep practicing until I tell you to stop, then you may read a story."

Program 1 of phase 1 contained each letter of the alphabet; all 26 appeared at least once, and the frequency of any single letter in the program ranged from one to nine. No letter appeared twice in succession. Frequency of appearance of the letters in program 1 is shown in Table 2.

Program 2, which was used in the treatment phase, was developed from the raw data obtained from program 1 of phase 1. Because the frequency of appearance of the letters in program 1 varied, the percentage of possible errors on each letter for all 27 Ss on the total of the scores for six presentation times was used to determine the relative difficulty of the 26 letter configurations.

Remediation Was at Hardest Presentation Times

Control group used traditional braille materials

A—1	F—3	K—5	P—1	U—9
B—2	G—3	L—3	Q—3	V—3
C—1	H—2	M—2	R—5	W—7
D—3	I—3	N—4	S—3	X—7
E—4	J—3	O—2	T—5	Y—7
				Z—5

TABLE 2
Frequency of Appearance of Letters in
Program 1

P—20	I—10	E—9	H—6
R—12	O—10	J—8	S—6
Z—12	F—9	V—8	T—6
N—10	Q—9	Y—6	W—5
			M—5

TABLE 3
Frequency of Appearance of Letters in
Program 2

The 17 letters used program 2 (remediation program) and their frequency of appearance are shown in Table 3.

□ The tachistoscopic tactual discrimination (TTD) machine employed in this study is an experimenter-controlled, machine-paced device designed to facilitate increases in the speed of recognition and accuracy of discrimination of individual braille configurations. The three components of the device are:

1. *Console unit.* This unit contains the mechanism necessary for the control of readiness, presentation, and response interval timing, as well as number of recording devices.

2. *Program unit.* This unit employs a 52-panel, six-deck stepping switch, each deck corresponding to a solenoid, or pin, in the presentation unit, and three female cinch Jones connectors with 100 contacts in each. The program is wired on the male cinch Jones connectors which are easily snapped into place on the outside of the program unit. In this manner power is supplied only to those contacts that correspond to the presentation pins the programmer wishes to be presented.

3. *Presentation unit.* This unit, the only part of the device with which the S comes into contact, presents to him a stimulus-response panel made up of a presentation plate and six response keys. The presentation plate, a braille head from a Perkins Brailier, presents a preprogrammed stimulus in the form of blunt metal pins which project 0.015 in above the surface of the plate. The length of time the pins remain exposed is controlled by the presentation timer. The response keys are connected to the coincidence circuit in such a manner that only when all of the correct keys are depressed will a correct response be recorded and the program advanced to the next braille configuration. If at any time during the response sequence an incorrect key is depressed, a relay is tripped making a correct response impossible for that presentation. In this case the discontinuous or response timer starts the readiness timer and the sequence is repeated. If a correct response is registered, a solenoid on the stepping switch is energized, stepping it to the next position; a correct response is recorded on the correct response counter and the next preprogrammed configuration is presented.

Components of Tachistoscopic Device

The following measures were employed to judge the effectiveness of training on the tactual discriminating device. With the exception of IQ measurement and machine data, all measures were administered before phase 1 and again at the conclusion of phase 2. At the conclusion of phase 2, program 1 was readministered to both experimental and control Ss at a 0.3 sec presentation time level. The data obtained were compared to those for the 0.3 sec presentation time data gathered in phase 1 to determine the effect of machine training on the responses made in the machine task. Total responses, responses on remediated letters, and responses on nonremediated letters were analyzed. It was predicted that there would be no difference between the groups on these variables.

□ The effectiveness of the training program on traditional braille reading was measured by the following tasks:

a. *Traditional braille reading tasks.* A 5-min oral reading task, using material adapted and transcribed into traditional braille from Science Research Associates, Inc., was used to determine the traditional braille reading speed of the S. Oral questions were administered after each individual braille-reading evaluation to insure appropriate comprehension of the reading materials. No analysis was undertaken in this regard. Measurements on the basis of this reading were number of braille words read in 5 min, errors, and retracings. The specific braille materials read by each S were appropriate to the reading achievement level of all Ss.

b. *Braille configuration recognition task.* This included letters and punctuation marks and was used to measure the improvement (in terms of speed of perception) in the perception of traditional braille configurations. The measure in this regard was in terms of errors.

In the analysis of the error counts on the ten time-set intervals, it was found that the Ss committed more errors on the 1.0-sec trials than they did on the middle speed ranges (the three ranges were arbitrarily defined by the Es as follows: slowest, 1.0, 0.9, 0.8, middle, 0.7, 0.6, 0.5, 0.4; and fastest, 0.3, 0.2, 0.1). The pattern of a decreasing mean number of errors from the upper range to the midrange and an increasing number of errors from the midrange to the lower range was found for all Ss for each stimulus presentation time.

It was noted that the optimum presentation speed (that yielding the lowest mean score) was 0.6, with the number of errors greatly increasing from 0.5 through 0.1. Although the presentation speed for the lowest mean errors varied from grade to grade (grade level curves are not presented), the three fastest presentation speeds (0.3, 0.2, 0.1) showed a sharp upward trend for all Ss.

Table 4 presents the letters evidencing the greatest number of errors in rank order and the probability of error for each. The letters chosen for the remediation program in phase 2 were those in the upper half in the total range of error probability. Table 5 presents an additional analysis of rank order correlation made between various levels of presentation time: fast and medium, fast and slow, medium and slow, and total range with the fastest,

Criteria for Measuring Effectiveness

Optimum presentation speed was 0.6 sec.

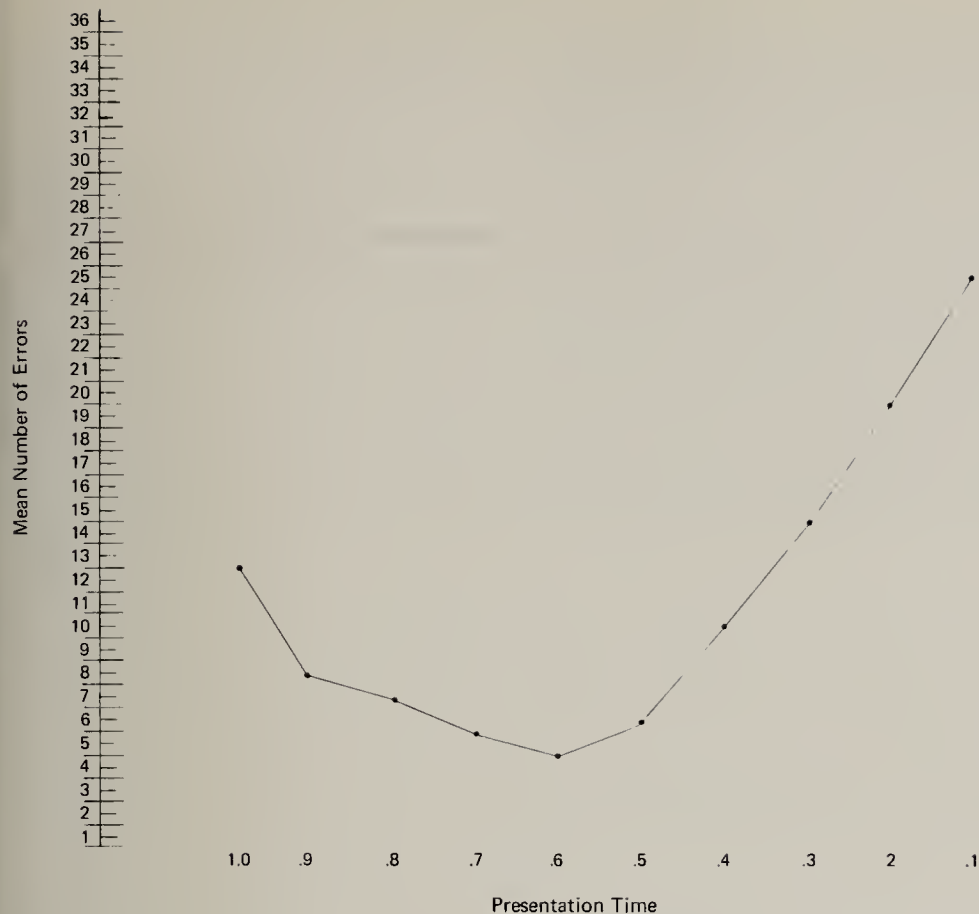


FIGURE 1
Mean Errors Recorded on
Program 1 in Phase 1 for all Ss

* P = .32	* S = .18	* E = .15	G = .12
* R = .25	* O = .18	* V = .15	X = .10
* Z = .24	* I = .17	* Y = .14	B = .07
* N = .24	* M = .17	* H = .14	C = .06
* F = .21	* T = .17	* W = .14	K = .06
* J = .19	* Q = .16	D = .13	L = .05
		U = .13	A = .04

TABLE 4
Rank Order of Difficulty for 26
Letters, A to Z

Range remediated: .32—.14

Total range: .32—.04

* Remediated program letters used in phase 2.

	Fast (0.3-0.1)	Medium (0.7-0.4)	Slow (1.0-0.8)	Total Range (1.0-0.1)
Fast	1.00	0.75	0.50	0.91
Medium		1.00	0.67	0.91
Slow			1.00	0.67
Total				1.00

TABLE 5
Rank Order Correlations of Letter
Difficulty for Three Speeds of
Presentation

medium, and slow ranges. These correlations indicated more stability for the rank order of letters between the fast and medium ranges and the total range than for the other comparisons supporting the choice of a 0.6-to-0.1 range as a basis for the choice of braille letters to be used in the experimental remediation phase.

The program of 96 random-ordered letters was used in the collection of normative data on all Ss, experimental and control, and was used again as a poststudy criterion measure. A summary of relevant data appears in Table 4.

Data in Table 6 confirm the hypothesis that there are no significant differences between the groups in the three pretraining machine variables. In the posttreatment analyses a statistically significant difference ($t = 2.23$, $p < 0.05$) in favor of the experimental Ss was obtained on the braille letters which were remediated. Investigation of differences between the groups on

Random order sequence was used with both groups

<i>Groups Compared</i>	<i>Program Variables</i>	<i>Mean Scores</i>	<i>SD</i>	<i>t-value</i>	<i>p = .05</i>
Experimental and control (N = 26)	Total program Pretask	68.53-85.44	3.06	0.730	p > .05
Experimental and control (N = 26)	Remediated letters Pretask	65.90-64.72	3.40	0.350	p > .05
Experimental and control (N = 26)	Nonremediated letters Pretask	75.58-70.56	3.87	1.350	p > .05
Experimental and control (N = 26)	Total program Posttask	70.70-64.67	3.14	1.920	p > .05
Experimental and control (N = 26)	Remediated letters Posttask	71.00-63.59	2.23	2.230	p < .05
Experimental and control (N = 26)	Nonremediated letters Posttask	71.07-67.51	3.74	0.950	p > .05
Experimental (N = 13)	Total program Pretask-to-posttask	68.58-70.70	3.96	0.548	p > .05
Experimental (N = 13)	Remediated letters Pretask-to-posttask	65.90-71.00	4.86	1.050	p > .05
Experimental (N = 13)	Nonremediated letters Pretask-to-posttask	75.78-71.07	2.97	1.580	p > .05
Control (N = 13)	Total program Pretask-to-posttask	66.29-64.67	2.06	0.786	p > .05
Control (N = 13)	Remediated letters Pretask-to-posttask	64.72-63.59	2.08	0.538	p > .05
Control (N = 13)	Nonremediated letters Pretask-to-posttask	70.56-67.51	2.86	1.070	p > .05

TABLE 6

other posttreatment variables of total program and nonremediated letters indicated no significant differences.

Further inspection of Table 6 also reveals that there were no significant differences within groups on pretreatment to posttreatment scores for the total program, remediated letters scored separately, and/or nonremediated letters scored separately. Improvement between pretasks and posttasks was shown by the experimental group in the total program and the remediated letters percent scores. A decrease in percent of correct responses from premeasurements to postmeasurements was shown in the nonremediated letters. The control group, on the other hand, showed a slight decrease in the percentage of correct responses between premeasurements and postmeasurements on the total program on all remediated and nonremediated letters treated separately. This decreasing trend more nearly approached significance for the nonremediated letters.

□ Additional analyses were undertaken to study the effectiveness of discrimination training on the TTD machine upon the speed and accuracy of reading traditional braille materials. T-tests measuring the differences between the means of two independent samples were computed between experimental and control groups on each of the traditional braille variables. These data are summarized in Table 7, which indicates no statistically significant differences between the groups on any of the pretreatment variables. There were also no statistically significant differences between the groups on the posttreatment measurement variables. Thus, no significant treatment effects were noted on traditional braille reading ability of the Ss.

In order to measure the possible relationship between machine and traditional measurement scores, rank order correlations were employed to investigate the relationship, if any, between machine presentation timing and the speed of reading traditional braille material. Investigators used correct re-

Effectiveness of Discrimination Training on Tachistoscopic Device

Reading Speed X	Mean Score		Standard Deviations		t-value	p = .05
	Experimental (N = 13)	Control (N = 13)	Experimental (N = 13)	Control (N = 13)		
Words per 5 min						
Premeasurement	333.20	325.40	212.85	109.23	0.1100	p > .05
Postmeasurement	361.40	336.40	193.68	141.75	0.3700	p > .05
Errors						
Premeasurement	13.08	8.85	9.23	4.47	1.4800	p > .05
Postmeasurement	8.69	6.69	7.16	2.44	0.9489	p > .05
Retracings						
Premeasurement	37.31	32.00	10.95	17.49	0.9283	p > .05
Postmeasurement	27.15	26.08	11.87	13.03	0.2215	p > .05
Cell						
Premeasurement	92.85	92.46	6.92	5.83	0.1153	p > .05
Postmeasurement	94.15	93.31	7.81	3.74	0.4421	p > .05

TABLE 7
Phase 2: Differences Between Means
of the Two Groups on Traditional
Task Variables

sponse scores as a measure of this presentation time variable, and correlations were computed using not only the optimal presentation time indicated by phase 1 (0.6 sec) but also the premeasurement and postmeasurement presentation time of 0.3 sec. Results are summarized in Table 8.

Group	N	Measurement Variables		Time Administered	r	t
		Traditional	Machine			
Experimental	13	Reading speed: words per 5 min	No. of correct responses at 0.6 presentation time	Preremediation	0.26	0.87
Experimental	13	Reading speed: words per 5 min	No. of correct responses at 0.3 presentation time	Preremediation	0.39	1.40
Experimental	13	Reading speed: words per 5 min	No. of correct responses at 0.3 presentation time	Postremediation	0.60	2.49
Control	13	Reading speed: words per 5 min	No. of correct responses at 0.6 presentation time	Preremediation	0.43	1.57
Control	13	Reading speed: words per 5 min	No. of correct responses at 0.3 presentation time	Prere-mediation	-0.19	0.65
Control	13	Reading speed: words per 5 min	No. of correct responses at 0.3 presentation time	Postre-mediation	-0.31	1.06

TABLE 8
Rank Order Correlations Between Reading Speed and Correct Responses on Automated Configuration Tasks for Experimental and Control Subjects On Premeasurements and Postmeasurements

□ There was a significant coefficient of correlation (0.06) for the experimental group on the postmeasurement task. This is significantly different from 0 ($t = 2.49$, $p < 0.05$). This relationship does not exist in either of the premeasurement comparisons. It is, therefore, assumed, based upon the derived data, that training on the automated device had the effect of an increased relationship between these two variables. Inspection of the coefficients of correlation in t -values for the control Ss indicates that the relationship differed between the two pretask comparisons. The relationship between the optimal presentation time response scores and the words read for 5 min showed a correlation coefficient of 0.43 and a t -value of 1.57, which approaches a significant difference from 0. While this indicates a positive relationship, the correlation coefficients and t -values for both premeasurements and postmeasurements relating reading speed with the responses at 0.3-sec presentation time showed an increasing nonsignificant negative relationship between the two variables. It may be deduced, from data given in Table 8, that in the control group the fast readers made more errors than the slow readers—a condition which became more pronounced in the posttask correlations—while in the experimental group the positive relation between correct responses on the two tasks became more pronounced.

Fast Readers Made More Errors Than Slow Ones

□ The primary aim of this study was to examine the relationship between the interval from stimulus presentation to response and the ability to discriminate the stimuli on a tachistoscopic programmed instructional device. The secondary aim was to utilize normative data in the development and implementation of a remedial program to determine the effects of machine training in rapid presentation and discrimination of single-cell configurations on several machine and traditional-task variables. Other variables considered in the analysis of the data included the relationship of fast, medium, and slow presentation times to the rank order difficulty of the 26 braille letter (alphabet) configurations; the relationship between speed of traditional braille reading, responses on the tachistoscopically presented configurations, and two presentation times (0.3 and 0.6 sec.); and the relationship between IQs and errors committed at the optimal presentation time of 0.6 sec.

The results of the study reported here have implications for several of the recommendations of the aforementioned AAWB-AAIB Joint Uniform Braille Committee. A review of the literature of tactual stimuli presented tachistoscopically (12, 14, 17) or in programmed instruction (10, 14, 16, 17) provided no research information on the optimal speed of presentation of braille configurations. This investigation did provide some data on this subject. The graphing of the data obtained by time trials indicated that, for the total group of Ss, the number of errors committed at the perception time settings of 1.0 sec and 0.9 sec was greater than at settings of 0.7, 0.6, and 0.5 sec. The fewest errors occurred at 0.6 sec. The number of subject errors increased markedly on trials 0.4 through 0.1. The general trend of greatly increasing errors at the faster presentation time seems to indicate some perception speed parameters. There appears to be little doubt that the middle time range—from 0.7 sec to 0.4 sec inclusive—allows adequate time for perceptual difficulties. *This does not mean, however, that individual braille readers perceiving configurations within the context of reading traditional braille materials do so at this speed.*

□ Nolan¹⁶ has indicated that, for younger beginning braille readers, there seems to be a correlation between IQ and total errors made at the optimal presentation speed of 0.6 sec. A Pearson Product Movement Correlation was computed to determine whether such a relationship existed. The resulting coefficient of correlation ($-.45$) showed a significant inverse relationship between IQ and errors on this measure ($t = 2.49, p 0.05$). These data suggest that Ss with higher IQs make fewer errors on tachistoscopically presented braille letters than Ss with lower intelligence.

Nolan¹⁵ has proposed several factors for the study of the relationship between tactual perception and beginning braille reading. Among the most important of these is the ability to perceive and reproduce tactual patterns. In the normative data phase of the study, the concern was with this variable, though not with beginning braille readers. Fertsch⁶ has indicated that traditional braille reading habits become established by the third grade level and do not seem to change noticeably with increased age and reading experience.

Results of the Study

Correlation Between IQ and Total Errors

Future studies with automated learning devices should evaluate experimental programs with young beginning braille readers, since modifying braille reading behavior at these ages would seem most feasible. The tachistoscopically presented tactual stimuli of individual braille letter cells and the called for haptic responses of depressing a corresponding pattern of six response keys did not require a knowledge of stimulus meaning. Utilizing the concepts of programmed instruction—i.e., informational presentation that required Ss to make overt responses, the processes of immediate feedback, and individual pacing in exposing the experimental materials—enabled the Es to use the learning device for measurement purposes, rather than the traditional methods of measurement. All Ss possessed the necessary skills to operate the device efficiently.

The results of the data collected in phase 1 of the study on errors for the presentation times 0.6—0.1 sec inclusive for all 27 Ss provided a rank order of difficulty for the 26 letter-cells. This analysis was concerned only with the total error count for each letter and was not with the individual or grade-level variance of the Ss. We compared these results with rank orders obtained by Kederis¹² who used tachistoscopical presentation and oral responses to word presentation, and found both similarities and marked differences. Of the 17 letters which were found most difficult, and which were subsequently used in a remediation study involving the same Ss, 11 were in agreement with both Kederis and Bruklin, although there was little agreement on the exact order of difficulty of the remaining six letters. Of the remaining six letters it was found that I, M, and E were in disagreement with Kederis who placed G, X, and L in the 17 most difficult letter group, and F, V, and H were in disagreement with Bruklin who placed D, B, and K in the 17-most-difficult range. If consideration was only given to the 10 most difficult letters, we again find considerable differences in rank order among the three studies being compared. Complete agreement on all three studies was found only in the letters R, Z, and N.

Further inspection of the letters on which a proportionately high number of errors were made indicates that the errors considered above were not homogeneous in suspected derivation. Ashcroft² and Hanley⁸ have given considerable attention to reversal and alignment problems. These data confirmed the need for concern with this type of error.

The results obtained in this study further suggest considerable similarity in the particular letters which are problematic to the braille reader when knowledge of these letters is arrived at through either oral or tactual responses to the tactually presented stimuli. Although the rank order of difficulty varies considerably, the haptic mode of response (single successive perception of a whole configuration) provides results which seem to confirm most of the difficulty of reversible cells and cells containing four or more dots. Although the response required did not preclude the knowledge of the cell meaning, there was no way to determine, within the scope of this experiment, whether the error indices were in any way influenced by mediating cognitive responses or by tactual errors in making the response. It would seem to these

Further studies should evaluate programs for beginners

Same letters cause trouble with oral or tactual responses

investigators that errors—at least at the faster presentation speeds—would be most likely to result from faulty perception. This would lend support to the opinion of many students of the problem that the present braille code is lacking in varied characteristic forms.

The remediation training program used in phase 2 of the study was designed to remediate those letters in the upper range of probability of errors in perception to their rank order probability of error. The resulting data did indicate a significant difference ($t = 1.05, p < 0.05$) in the speed of perception of braille configurations as a function of training. As the design of the remediation program was, in this case, based on the diagnosis of overall group errors at all presentation speeds, it would seem feasible that remediation programs constructed for individual subject profiles would demonstrate even greater differences. The proportion of remediated letters to non-remediated braille letters used as a measurement task was small. It was, therefore, unlikely that a measure of increased correct responses for either group would have been significant.

□ The experimental Ss involved in the remediation phase of the study demonstrated an increase in reading rate which was 3.5 words per min faster than the control group evaluated during the same period. The experimental Ss also demonstrated an increase in traditional braille reading ability of 5.7 words per min over the course of the investigation. These results, while statistically insignificant, do have some practical significance, since during the evaluation period only nine 15 min periods of remedial instruction were given to each S. These data suggest that this unit (the automated learning device) may have potential beneficial effects in training people to read braille in the traditional manner.

Device May Prove Beneficial as a Training Tool

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Federal Regional Office Locations

Regional office for the U. S. Departments of Health, Education, and Welfare, Labor, Housing and Urban Development, the Small Business Administration, and the Office of Economic Opportunity will be located in the following cities:

Boston (Region I); New York City (Region II); Philadelphia (Region III); Atlanta (Region IV); Chicago (Region V); Dallas-Fort Worth (Region VI); Kansas City, Mo. (Region VII); Denver (Region VIII); San Francisco (Region IX); Seattle (Region X).

Harmonic Compression: Double-tempo Recordings with No Rise in Pitch

The sonorous voice of an actor reading a talking book can be pleasant to listen to. But, to a blind person reading more for information than for pleasure—or more interested in plot than in style—the actor's rate of speech (about 150 words per minute) can be irritatingly slow.

□ For years, subscribers to talking books and other programs offered recorded reading matter have been getting around this problem by speeding up the turntables of their record players, sometimes playing voice recordings at speeds up to 60 percent above normal. This makeshift solution enabled them to absorb spoken materials at a faster rate, but it produced an unpleasant byproduct: the squeaky "Donald Duck" effect caused by the rise in pitch that results whenever a record is played at a speed faster than its normal rate.

In 1965, engineers from the American Foundation for the Blind, in cooperation with colleagues at Bell Laboratories in Murray Hill, N.J., set out to find a better solution to the problem. Their aim was to double the tempo and, at the same time, eliminate the Donald Duck effect—that is, to keep the pitch at its normal level.

A few years earlier, Bell Labs had been faced with the problem of increasing the message-carrying capability of existing telephone lines. Their solution had been the Harmonic Compressor, an instrument that enabled a single line to carry more than one conversation at a time.

The engineers believed that, with a simple modification, the Harmonic Compressor could be adapted to produce fast-speech recordings. A simulation test on the Bell Labs proved this belief correct and the AFB engineers set out to build their own version of the Harmonic Compressor—one that they could use to make high-speed recordings for blind listeners.

□ Four years later, in June 1969, they unveiled the result of their work, a 6' x 22" x 22" cabinet containing a complex array of electronics and capable of producing "compressed speech" recordings—recordings that double the speed of the human voice without doubling the pitch. The recordings can be played on ordinary phonographs or tape machines at normal playing speeds.

How does the Harmonic Compressor work? Taking as its input the human voice speaking at a normal rate, the compressor breaks the speech sounds down into 36 harmonic components, halves the frequency of each, and recombines them into one signal. Then it doubles the syllabic rate of this signal to produce a recording twice as fast as the original but with the same pitch.

The first publications to be recorded compressed will be popular magazines. The reason for this is that they are relatively low in "information

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Speeding Up the Turntable Caused a Rise in Pitch

The aim was to double tempo without doubling pitch

The Specially Adapted Compressor Was Unveiled in 1969

How does it work?

density"—that is, they contain less information per paragraph than books or technical journals. This will represent a testing phase. Whereas the ordinary recorded edition of *Ladies Home Journal* takes about six hours to play, the compressed speech edition will take only about three hours.

The next step will probably be to record text materials in compressed speech. It is true that such materials have a higher information density than popular magazines. But by eliminating the boredom that a listener feels when he is forced to absorb material that interests him at the slow rate of the normal human speaker, compressed speech may actually bring about increased comprehension, as well as better retention.

□ What of the psychological effects of listening to compressed speech? One untrained observer reports that at first, he had to strain a bit to catch the words as they rushed past. But then, after a few seconds, something clicked in his mind and his mechanism of comprehension meshed with the speed of the compressed speech. It felt, he reports, much more like reading than like listening.

The present model of the Harmonic Compressor is a prototype only; but it is a fully operational prototype, capable of producing clear, comprehensible speech recordings at double the normal speed.

More Like Reading than Listening

World Council for the Welfare of the Blind Meets in New Delhi This Month

The quinquennial general assembly of the World Council for the Welfare of the Blind is being held from the eighth to the 18th of this month in New Delhi. The American delegates are Russell Kletzing, representing the National Federation of the Blind; Howard Hanson, for the American Association of Workers for the Blind; Judge Reese H. Robrahn, for the American Council of the Blind; James F. C. Hyde for the Blinded Veterans Association; Carl Davis for the Association for Education of the Visually Handicapped; and M. Robert Barnett for the American Foundation for the Blind. Mr. Barnett is chairman of the delegation.

□ The composition of this year's United States delegation to WCWB has been altered from previous years. Formerly the United States has been represented by one delegate each from the American Foundation for the Blind, the American Foundation for Overseas Blind, the National Federation of the Blind, the Association for Education of Visually Handicapped, and by two from the American Association of Workers for the Blind.

This year AAWB relinquished one of its seats, and AFOB relinquished its seat in order that the delegation might have a better balance. These two seats were taken by the American Council of the Blind and the Blinded Veterans Association.

**Composition of U.S. Delegation
Has Been Changed**

The Development and Testing of the Caster Cane

Some time ago, a modest program of research in mobility was underway at the University of Louisville. The ultimate objective of this program is to develop the ability to measure total mobility performance over a standardized course that confronts the subject who moves through it with a broadly representative sample of the problems that must be solved by a blind cane traveler. If this objective can be realized, it will then be possible to vary systematically factors that are believed to be related to mobility performance in order to determine their actual contribution.

□ Because this program is, as yet, seriously underfinanced, it has not been possible to pursue this objective as aggressively as might be desired. However, in order to get some research underway, it was decided to initiate a few pilot experiments, the results of which might suggest those characteristics of the cane that contribute to its effectiveness.

The cane was regarded as an instrument for collecting information about the environment through which the traveler must pass, and a cane's effectiveness was defined in terms of the amount of information it transmitted from the environment to the hand of the user. With this orientation in mind, it was possible to vary systematically the characteristics of the cane—such as its weight, length, flexibility, and kind of tip—in order to determine their effect on the amount of information transmitted. The results of these experiments have been reported in the Proceedings of the Conference for Mobility Trainers and Technologists, held December 14 and 15, 1967 under the sponsorship of the Sensory Aids Evaluation and Development Center, Massachusetts Institute of Technology (MIT). In that report, it was shown that lighter and less flexible canes were more effective and that the most effective cane length would, within broad limits, depend upon such personal factors as height and characteristic length of stride.

□ The cane's tip was not included as a variable in this series of experiments. However, it was given consideration in a less formal way. Several tips were constructed. Their construction was guided by the general consideration that, since the cane is a tool with which a person actively explores in order to obtain information about the environment, its tip must be so formed that it will pass over surfaces easily. It must not, for instance, become lodged in cracks or entangled in vegetation.

Now, if the cane is used in the prescribed manner, its tip provides only intermittent samples of surface information. We reasoned that, if surface

A small grant awarded by the Arts and Sciences Research Committee of the University of Louisville provided the money required for the development of the caster cane.

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The Program Began with Pilot Experiments

The cane is an instrument for collecting information

Criteria for Designing the Tip

characteristics could be monitored continuously, the cane traveler might be able to obtain useful information that is apt to be missed with an ordinary cane used in the ordinary way.

To test this hypothesis, we decided to develop a cane with a caster for a tip. Several preliminary models were built, leading up to the construction of the final caster. Both the frame and wheel of this caster are made of aluminum. The wheel is about two inches in diameter, and is equipped with a small neoprene tire. Both the bearing on which the wheel turns and the bearing on which the caster frame turns are machined to close tolerances, so that when the caster is properly lubricated, it turns freely without wobbling.

□ The author used the cane for a period of several weeks, to determine whether or not it was worth showing to others. Although some design difficulties were discovered, its performance was judged to be good enough to warrant evaluation by other users.

The caster cane was first exhibited at the MIT Conference for Mobility Trainers and Technologists, where it received a mixed, but generally cool, reaction. Next it was sent to the Royal National Institute for the Blind (RNIB) in London, where it was judged to be of sufficient interest to justify further testing and inquiry. Accordingly, the cane was sent to three RNIB establishments in succession, and a written evaluation was requested from each. These evaluations, reproduced in full as below, rather clearly set forth both the assets and the liabilities of the caster cane.*

□ "Just lately every long cane student at Manor House has had the opportunity of using the wheeled long cane. Their reactions have been mainly favourable. This type of cane is quite good for locating changes in surfaces and of course detecting 'down kerbstones' [British spelling of 'curbstones'—Eds.]. The long cane technique has been used with this, and it was soon felt that this was tiring on the wrist. Besides this, it was noticed that students were inclined to narrow the arc to such an extent that they were not adequately protecting themselves.

"All the persons using the wheeled canes have previously used the standard long cane and found some difficulty in adjusting to this type of travel aid. It is felt, however, that if the new students on long cane mobility could commence their training using the wheeled cane there is no reason why they should not become proficient in its use. Everyone using the cane here has spoken appreciatively of the wheeled cane and the mobility training staff are suitably impressed, providing the mechanics of the cane can be improved."

□ "This cane is inevitably much heavier than the ordinary long cane, and therefore when used as a probe to locate landmarks and to investigate objects it is less sensitive. Many find the handgrip rather thick. Because of its weight, the extension movement of the wrist is more difficult and in consequence adequate cover on the right side is not always given. I also found that the wheel ran so easily that it often moved quicker than the walking pace and

* The author gratefully acknowledges the assistance of Mr. C. W. Garland, Technical Officer, the Royal National Institute for the Blind, London, England, who arranged for these evaluations.

Characteristics of the caster tip

Individual Test Proved Cane Merited Further Evaluation

Evaluation I

New students could be trained to use caster cane

Evaluation II

was, therefore, often out of step, to synchronise the cane and the step was difficult to maintain. However, with practice it was possible to keep the side-to-side movement of the cane in tune with the footsteps. Some even said that they found themselves just pushing the wheel ahead, especially in a crisis; I noticed this too, but no harm resulted.

"The cane was heavy to operate using the strict Hoover technique—i.e., with the elbow straight—but I found it just as effective with the elbow bent slightly across the body and the wrist fulcrum from the centre of the body. I was able to walk long distances in this way without any strain on the elbow or forearm muscles and it did not tire me. I think that the wheel as an indicator of terrain is first class; it is far more effective than the ordinary long cane. It detects every down kerb or irregularity of pavement—this is not always the case with the long cane unless perfect technique is maintained, which is virtually impossible for the ordinary man. I think it is less tiring with the weight of the cane on the ground through the wheel and the elbow flexed than using the ordinary long cane over a long period. I found it much more satisfying to feel all the ground in front of me rather than just two points. It could be argued that the sound value is lost with the wheel and perhaps tipped shoes should be worn in order to give some sound echo. For purposes other than the Hoover technique the wheeled cane is at a disadvantage. Going up or down steps for instance, the long cane lightly detects each step; the wheeled cane can do this but it is heavier to hold and less delicate and sensitive on steps. I think, too, there is something to be said for the crooked handle. It does not slip from the hand so easily and it is more convenient to hang the cane up to free the hand momentarily. We found that the wheel must be oiled almost daily if used much or the swivel and the wheel itself soon start grinding and resisting.

☐ 1. *With practice, is one able to adequately discriminate between surfaces with the wheeled cane?*

"We feel that most users should be able to recognize different surfaces. There is a definite vibration over rougher ground even though the rubber rim of the wheeled cane 'cushions' contact with this type of surface.

"For those people with little or no sensitivity of touch the present long cane is likely to provide them with more tactual information.

"2. *No one mentioned the difficulty of probing with a wheeled cane. Is this important?*

"Probing is not a word which we use in mobility training. Nevertheless, in certain circumstances, the wheeled cane, because of some lack of flexibility, does have its disadvantages.

"For example, a traveller would sometimes want to slide his cane against a wall or fence to assist in getting a line of direction parallel to it.

"Also, lamp-posts, tree-trunks, road signs, and bus standards can be quickly checked out using the present long cane rather more quickly and efficiently than the wheeled cane.

"Generally speaking, whenever lifting of the cane is involved to check out or explore an obstacle, then the wheeled cane has its disadvantages.

Far more effective than the ordinary long cane

Evaluation III (Question and Answer)

Probing was found difficult with caster cane

"3. No one said that the silence of the wheeled cane was a disadvantage. To what extent are sound clues, such as one gets with a long cane, important (a) to the user, and, (b) to other pedestrians?

How important are sound clues?

"The fact that the wheeled cane is so silent in use means that the traveller can concentrate more easily on sounds around him. However, the sound made by the conventional cane may be doubly re-assuring to the traveller.

"Obviously there is a slightly bigger risk in obstructing or contacting other pedestrians. In a crowded or noisy street, however, it must be remembered that the present long cane escapes detection by ear anyway. In the event of contact with a pedestrian, the wheeled cane is less likely to cause any damage, for example, to ladies' nylon stockings.

"4. Does one ever want to put some weight on a long cane, for example, in getting off a bus? If so, is it disastrous that the wheeled cane would not allow this?

"The conventional long cane is certainly not designed for supporting one, though in getting off a bus it might have a steadying effect on one's balance. Blind persons using buses are usually quite capable of alighting or else seeking sighted assistance.

"Our general impression is that apart from some lack of flexibility the wheeled cane is an important development in mobility for the blind. It provides for smoother travel—especially over rough pavements—and since the user is in continual contact with the ground, detection of kerbs and descending steps, is made easier.

"We would strongly recommend that the wheeled cane be made available to all blind persons who had received long cane orientation training. The ultimate choice between the conventional long cane and the wheeled cane, should be the decision of the blind student acting upon the advice of his mobility instructor. For competent, fast walking travellers, the present long cane would be more suitable.

Student should decide between conventional and wheeled cane

"We noticed that there was some lack of co-ordination when the students used the wheeled cane. They were more likely to lose step and the arc described was less consistent. We would suggest that training be done with the present long cane but that the student completing his course should have an opportunity of using the wheeled cane and deciding for himself.

"Our considered opinion is that there would be a great demand for this type of wheeled cane."

□ The author's experience with the cane is fairly summarized in the evaluations reproduced in this article. The models of the cane that have been constructed for evaluative purposes have cost approximately \$50.00 apiece. However, these models were constructed, one at a time, by a tool and die maker. They could be produced on a larger scale at a much lower cost. If there proves to be sufficient interest, an effort will be made to advance the development of the caster cane.

Conclusions

Vocational Counseling of the Visually Handicapped in Illinois High Schools

Many years ago, visually handicapped persons were employed primarily in sheltered workshops where they learned to make mops and brooms, cane chairs, and tune pianos. They were assigned these jobs regardless of their real interests or abilities. Today, however, the situation is different; many other positions are available for blind and partially seeing persons. Mary E. Switzer, Commissioner of Vocational Rehabilitation, United States Department of Health, Education, and Welfare, states the current philosophy in this way: "It is his aptitudes and abilities—not his disabilities—that tell what sort of work a blind person can do."

It seems apparent that the more types of employment the visually handicapped person can hope to obtain, the greater will be his need for vocational counseling. It is important to assist the visually handicapped student before insecurity develops and ambitions are destroyed by months of inaction.

□ One of the major duties faced by those who work with blind and partially seeing students is the provision of a realistic vocational counseling service for them at the secondary level. At this time in their lives, visually handicapped students stand at a critical point of development since they will soon be entering a sighted world. They will be faced with choices involving possible employment opportunities, starting a college career, or getting married. Any outcome will be a test of their capacity to function as independent adults.

In most instances, blind and partially seeing students at the high school level are integrated into the regular classroom, and participate in all phases of the curriculum. Specially trained teachers—serving on an itinerant basis or in an established resource room—are employed by the schools to help them with their special needs.

With the existence of such programs for education of the visually handicapped, there appear to be two main sources of vocational counseling within the present framework of the public high schools: the special teacher and the high school guidance counselor.

But this presents a problem: In most instances the special teacher has no background in counseling; the guidance counselor, on the other hand, usually has only a limited background in working with visually handicapped individuals. Moreover, there may or may not be a good working relationship between the two sources; in other cases it may not yet be established.

It was concern with this problem that motivated the authors to make a study of vocational counseling services available to blind and partially seeing high school students in Illinois as they prepare to enter a sighted world.

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A Critical Point in Development

☐ The study was conducted by use of a questionnaire (closed form type) with multiple choice questions. Selection of multiple choice categories was determined by asking questions in essay form of a small sample of professional persons on the campus of Illinois State University at Normal. Their answers were used as a basis for developing the categories for the final multiple choice questionnaire.

☐ The final questionnaire consisted of one page for high school guidance counselors only, containing six questions, and one page for special teachers only, containing six questions. Both counselors and teachers received the remaining pages, two through five, which contained an additional 21 questions. The areas covered in the questionnaire were:

1. Specific information from the special teachers
2. Specific information from the counselors
3. Vocational counseling practices
4. Testing procedures
5. Sources of occupational information
6. Resources outside the school
7. Present needs and problems

The questionnaire was mailed to special teachers of the blind and partially seeing in secondary programs in Illinois, and to guidance counselors having programs for the visually handicapped during the school year 1966-67. Since only day school programs were to be represented in the study, the state residential school was not included.

The initial population of the study contained schools in 19 cities. Two cities declined because there were no visually handicapped children enrolled in the high school program. The Chicago Public Schools also declined to participate in the study (as a result of this approximately one-half of the total day school population of the visually handicapped in Illinois was not included in the study, and 38 percent of the anticipated population of teachers and counselors did not receive questionnaires).

The final population consisted of schools in 16 cities. Therefore, 32 questionnaires were sent. Twenty-six questionnaires were returned. This total constitutes a return of 81 per cent of the 32 questionnaires. The distribution of return is as follows: Teachers of blind students returned two; teachers of partially seeing students returned eight; teachers of blind and partially seeing students returned three; high school guidance counselors returned 13, making a total of 26.

☐ The study was descriptive and was not subjected to tests of statistical significance. The conclusions are based on inspection of the data. In view of the findings of the study, it would seem reasonable to draw the following conclusions:

The programs for the visually handicapped in this study were integrated programs—namely, resource or itinerant. The number of children being served ranged from one to 15. Teachers participating in this study were predominantly experienced teachers, with a minimum of five years experience. More than half the programs in the study had existed more than 10 years.

A Questionnaire Was Used

Areas Covered in the Questionnaire

The Study Was Descriptive

Counselors are serving from 200 to 350 students. The assignment of all students to counselors varies from school to school, with assignment by class receiving the greatest number of responses. The visually handicapped student is assigned to a counselor in the same manner as other students. Less than 25 percent of all counseling time is spent on vocational matters with visually handicapped students. The counselors had had little or no experience with visually handicapped persons prior to their present positions.

Most of the schools represented in the study reported that formal vocational counseling for the visually handicapped is handled by the guidance counselor and begins in the freshman year. The special teacher is responsible for the informal vocational counseling of his students, and makes the initial contact with parents regarding vocational matters during the freshman year.

□ The schools reported giving intelligence, aptitude, achievement, interest, and personality tests to the visually handicapped students. Specific tests given, in order of frequency, were: the College Entrance Board Examinations, School and College Ability Tests (SCAT), Kuder Interest, Wechsler-verbal, Sequential Tests of Educational Progress (STEP), Interim-Hayes Binet, Strong Vocational, Bauman Manual Dexterity, and Vineland Social Maturity Scale. In half of the schools in the study, tests are administered to the visually handicapped student by more than one person. The guidance counselor and the special teacher administer the majority of the tests. Most of the tests are published special editions. Many schools indicated that they used teacher-made test copies (braille or large type), or administer the tests orally.

Occupational literature in special form for the visually handicapped student is available in all but three schools. Over half of the schools stated that the information was available in ink-print only. The occupational literature is located in the resource room or in the guidance office. Selection of literature available includes both public and teacher-made material. Other sources of occupational information within the public schools were, in order of frequency; teachers in vocational areas, clubs for interest groups, deans, in-school work programs, and occupations courses offered by the school.

The special teacher is responsible for making the initial contact with the vocational rehabilitation counselors. The majority of responses indicated that counselors from the Division of Vocational Rehabilitation are contacted when the student is 14 or 15 years old. Fifty-eight percent of the total responses indicate that services rendered by vocational rehabilitation counselors were above-average or excellent. Other agencies contacted by teachers and counselors in order of frequency, were the Department of Children and Family Services, Community Services for the Visually Handicapped, and Illinois Visually Handicapped Institute, Illinois Department of Public Aid, Board of Education for the Blind and Deaf, and Other (local agencies).

Special teachers stated that the most important need of a vocational counseling program for the visually handicapped student is the "development of more realistic goals for them." "Lack of knowledge concerning vocations open to them" was stated as the greatest problem. Guidance counselors stated that the most important need of a vocational guidance program for the visually

What Tests Were Used?

Special teacher makes initial contact

handicapped student is "increased amount of counseling time." The greatest problem area to the counselors is "lack of adequate time to work individually with them."

The results of the study suggest that there are two main sources of vocational counseling for the visually handicapped within the present framework of the public high schools in Illinois. Formal vocational counseling is given by the guidance counselor, while informal vocational counseling is given by the special teacher.

The present curriculum for special teachers at Illinois State University at Normal does not include courses which would help to prepare the future teachers for the vocational counseling that will be expected of them. Likewise, the counselor-education program at Illinois State University at Normal does not provide the information necessary to help counselors cope with problems of the visually handicapped students.

☐ Teachers and counselors have little knowledge concerning the types of positions that are "open" for the visually handicapped. More information about possible positions should be published, and made available to teachers, counselors, and students.

Teachers Have Little Knowledge of Possible Jobs

Development of more realistic goals for the visually handicapped student was ranked by teachers as the most important need of a vocational counseling program. This fact might suggest that counseling should begin at an earlier age to enable the student to formulate a more accurate appraisal of himself in light of his visual loss, as well as to acquaint him with the knowledge of requirements for employment in various occupations.

The fact that the counselor's greatest problem area was "lack of time to work individually with them [i.e. the students]" might suggest that a special assignment should be made of the handicapped students to a counselor with a smaller load and with more experience in dealing with the special problems of this type of student.

The counselor's greatest problem was lack of time

Teachers did not indicate that time was a problem for them. Teachers might be given more of the counseling responsibilities, which again implies the need for teachers to receive some course work in counseling procedures.

☐ The fact that both teachers and counselors use a number of resources outside the school implies that a good working relationship is established between agencies and schools in Illinois. There was no indication of a routine time for contacting agencies, and it is felt that one should be established to insure that all services rendered by the agencies are received.

There Should Be A Routine Time for Contacting Agencies

In conclusion, the study showed that the responses of the special teachers and the guidance counselors were enthusiastic, indicating that they were interested in providing good vocational counseling to visually handicapped students.



■ Arthur L. Brandon, president of the National Accreditation Council for Agencies Serving the Blind and Visually Handicapped (NAC), and John F. Nagle, chief of the Washington office of the National Federation of the Blind, are the winners of the 1969 Migel Medals.

The Migel Medal is awarded annually by the American Foundation for the Blind to two persons, one professional and one volunteer, for outstanding service to the blind. The medal, named after the Foundation's first president, the late M.C. Migel, was first presented in 1937.

John F. Nagle, winner in the professional category, was chosen "in recognition of his significant and uncompromising interest in the improvement of the lives of those who are blind."

During the 11 years he has been on the staff of the Washington office of the NFB, Mr. Nagle has been responsible for shaping a great deal of the constructive legislation affecting the welfare of blind persons.

Prior to joining NFB, Mr. Nagle, who was blinded at the age of 13, practiced law for 15 years in Springfield, Massachusetts.

He is a graduate of Perkins School for the Blind, Watertown, Mass., and received an LL.B. degree from Northeastern University and a B.A. degree from American International College. To earn these degrees, Mr. Nagle spent nine years going to school at night while working days.

Arthur L. Brandon, winner in the volunteer category, was chosen "in recognition of his splendid leadership and skillful management of the highly intricate program of the National Accreditation Council for Agencies Serving the Visually Handicapped, the vital outgrowth of the study which was overseen by him during

the existence of the Commission on Standards and Accreditation."

Mr. Brandon, formerly vice president of university relations for New York University, and now a consultant on educational administration, became involved in the field of work for the blind in 1963 when he consented to serve as chairman of COMSTAC, the Commission on Standards and Accreditation of Services for the Blind.

Mr. Brandon received a B.A. degree from Alderson-Broaddus College and an M.A. from Bucknell University. He lives in Lewisburg, Pa.

■ U.S. Secretary of Health, Education, and Welfare Robert H. Finch has issued interim regulations prohibiting states from imposing length of residency requirements for eligibility for public assistance under the public assistance titles of the Social Security Act.

These regulations were issued as a result of the April 21 Supreme Court decision invalidating residency requirements.

■ Otto L. Petersen, vice-president of the Midwest Conference of Home Teachers, chairman and motivator of the committee on the production of the resource file for rehabilitation teachers, and active member of Group III, American Association of Workers for the Blind, died recently at the age of 39.

At the time of his death, Mr. Petersen was involved in producing the Midwest Conference resource file.

■ Three blind college seniors have received the 1969 Scholastic Achievement Awards, given each year by Recording for the Blind, Inc.

Two of the winners, David S. Mischel of Trinity College, Hartford, and James

Selby II of Tulane University, received the awards from President Richard Nixon in a White House ceremony. The third winner, Judith Ann Dent of Fontbonne College, St. Louis, did not attend the ceremony.

The awards are accompanied by a \$500 check.

■ Dr. Carl Kupfer, presently professor and chairman of the department of ophthalmology, University of Washington Medical School, Seattle, has been named the first director of the National Eye Institute.

Dr. Kupfer, a graduate of Yale University and the Johns Hopkins Medical School, has conducted studies of the movement of eye fluids, the histopathologic examinations of eyes which had been stressed by elevated eye pressures, and developmental anatomy of the eye. He has also conducted extensive studies on the nervous pathways from the eye to the brain.

As director of NEI, he will be responsible for administering intramural and extramural research programs on the causes, prevention, diagnosis, and treatment of blinding eye and visual disorders.

Coming Events

Oct. 22-24 Second Conference on Rate and/or Frequency-Controlled Speech, Louisville, Kentucky

Nov. 5-14 World Council for the Welfare of the Blind, General Assembly, New Delhi, India

Nov. 20-24 National Society for the Prevention of Blindness, Annual Meeting, New York, N.Y.

Dec. 5-6 National Social Welfare Assembly, New York, N.Y.

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Faster with Safety



Sensi-Quik's contour handle arranges the fingers for quick down-touching and accurate, rhythmic side motion with thumb and finger, minimizing wrist action. The nub at the handle's elbow rides in the crotch of thumb and forefinger, providing purchase for fingers when the hand perspires or when it rains. The tapered end reduces the "tripping hazard" on crowded subways.

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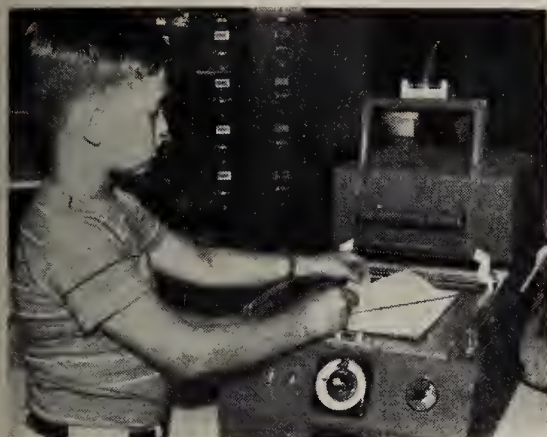
Canes are made on individual order in any length from 34 to 60 inches.

Developed and distributed by the Go-Sees, a non-profit corporation, Sensi-Quik canes are not sold. They are supplied to anyone who joins the Go-Sees and pays a membership fee of \$5. They are also available through agencies to individual trainees at a reduced rate of \$4 (they must be ordered in even-inch lengths).

Persons or agencies interested in the Sensi-Quik cane are invited to contact

Along with the Sensi-Quik cane, the Go-Sees provide an instructional manual entitled "Touch and an Occasional Tap." It is available on disk and tape and in braille and ink-print. In addition to stating the philosophy of the Go-Sees, the manual teaches the vocabulary of "cane talk words" that enable the traveler to respond quickly and deftly to the messages his cane picks up from the environment. The manual is available on loan from the address below.

Mr. Franklin S. Clark
The Go-Sees
166 East 92nd Street
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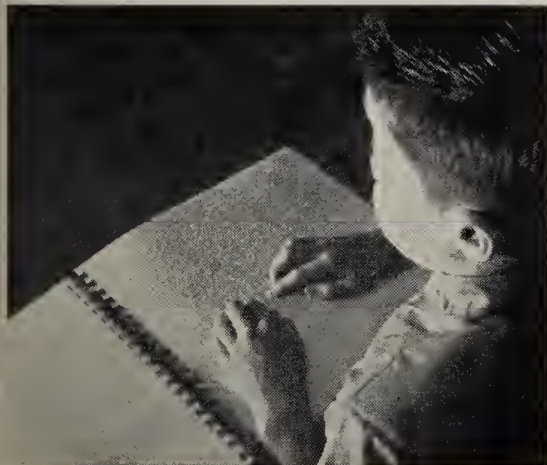


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THE NEW
Outlook
FOR THE BLIND

November 1969 Volume 63 Number 9

Personal Reading Machines: How They Work,
What They Can Do

Harvey Lauer

Can a Blind Person Learn First Aid?

Robert A. DeForest

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Public Elementary Schools

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Personal Reading Machines: How They Work, What They Can Do

This article is concerned with three reading machines. Two of them, the Visotoner and the Visotactor B, are well developed from an engineering standpoint and have been built in pilot quantities. The third machine, the Cognodictor, is now being built in production prototype. As I shall explain in greater detail below, these machines convert print into a combination of distinct audible tones or tactual stimuli, which the trained user can interpret as letters.

□ My experience with reading machines dates from 1964, when I began to learn to use the Veterans Administration's Batelle Optophone¹ (a precursor of the Visotoner, the Visotactor, and the Cognodictor) and, a bit later, to use the first Visotoner. First I learned to check my own touch typing and, later, to read typed correspondence. But I did not begin to feel really independent until I was able to use the reading machine to complete business transactions on my own. I learned to read many utility bills, type checks and envelopes, read over my typing, and check the legibility of my signature and the functioning of my pen. (At present, though these machines will read signatures, they will not read lengthy passages of handwritten script.) I could now mail a check confidently and later read the bank statement and canceled checks and compare them with my original braille notes.

Just as I began to feel that I was close to exhausting the possibilities of the first Visotoner, a redesigned model arrived from the manufacturer, Mauch Laboratories of Dayton, Ohio.² It had been developed under a research contract with the Prosthetic and Sensory Aids Service of the Veterans Administration.

So I sat down with a stack of mail and the new Visotoner. Most of the return addresses were amazingly easy to read. Then I tried reading the table of contents in a magazine. I was so impressed by the accuracy with which the machine "saw" the print that I decided to try reading a whole article. The machine proved equal to the task. As I was making my way through the article, I came to a word I wanted to check and reached for the dictionary. Sure enough, it too came alive. For the first time since starting to use the reading machines, I felt that I had really acquired a bit of synthetic eyesight.

□ How does the Visotoner "see" the print? The machine contains a vertical column of nine photo cells, an optical system, and electronic circuits which generate a different audible tone for each photo cell. The tone is triggered when the photo cell "sees black." The machine presents the letter shapes as patterns of tone. As it moves along a line of print, it responds with various combinations of nine different tones, corresponding to the

HARVEY LAUER

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Early Experiences with Reading Machines

A bit of synthetic eyesight

How Does the Machine "See" the Print?

differing shapes of the letters. Each letter or symbol has its characteristic tone pattern. For example, a hyphen is heard as a steady tone, the letter "I" largely as a chord, and the letter "V" as what I can only describe as a "wavy" sound. The machine responds to each letter or symbol on the following principle: The five middle tones respond to the band of print falling within the "x-height" of the letter—that is, the portion of the letter which fits within the vertical dimension of a lower-case "x." The two highest tones respond to the portion of a letter extending above the x-height and the two lowest to the portion extending below the x-height. The user learns to interpret these tone patterns as letters or symbols.

The Visotactor B, also from Mauch Laboratories, uses the same housing and accessories as the Visotoner, and works on the same principle, but gives a tactual output. It is sometimes referred to as a tactile optophone. Two of its mechanical vibrators are felt by each of the four fingers of the right hand. An eight-channel code is thus presented to the fingers as a pattern of vibrations. For example, the two stimulators felt by the little finger vibrate when the tops of letters which extend above the x-height are scanned. There is one channel for print extending below the line; it is felt by the left portion of the index finger. As with the Visotoner, there are five channels for scanning the x-height of the letters.

□ Both the Visotoner and the Visotactor have variable magnification optical systems that permit the user to select the proper magnification for letters printed in 7- to 36-point type. A lamp brightness control is also provided. A Visotactor with its battery, or a Visotoner with its battery and earphone, can be carried in a leather case the size of a hard-cover text book. During training, and when reading for long periods, it is advisable to use the reading machine with its tracking board—which Mauch Laboratories has named the Colineator. Either of these hand-held reading machines, along with its accessories, which include a spare battery and battery charger, fits into a specially designed attaché case. The complete apparatus and carrying cases weigh about 11 pounds. Both the Visotoner and the Visotactor B are now being built in pilot quantities.

Now that we have developed the equipment, we are looking for ways of putting it into the hands of blind persons and teaching them to use it. One of our first steps was to develop a screening course. Miss Margaret Butow, assistant to the director of the Hadley School for the Blind in Winnetka, Illinois (and my first Visotoner student) has developed, under a Veterans Administration contract, a 25-lesson Visotoner Screening Course for candidates interested in learning the skill. We are now in the process of evaluating this course. This course will provide a measure of a candidate's ability to learn the skill and of his motivation for doing so. It will also offer him a head start in the learning process. To complete the course, a candidate does not need a reading machine; all he needs is access to a tape recorder.*

* Persons who consider themselves potential users of the Visotoner or potential teachers of Visotoner training courses, are urged to take this course. They can obtain information on it by writing to Miss Margaret Butow, Hadley School for the Blind, 700 Elm Street, Winnetka, Ill. 60093.

A tactual reading machine

The Machines and their Accessories

A screening course

A Visotactor Screening Course, which will require special equipment, is in the early planning stages, and the equipment for it is now being designed.

The speed and accuracy with which a blind person can read with these instruments, depends on his needs, his abilities, and the amount of time he is willing to invest in training.

□ Reading speeds in particular vary greatly with the individual. I, for example, read only about five words a minute on the Visotactor, but one student—the first blind person to learn to read with the instrument—reads at speeds up to 15 words a minute.

Reading with the Visotoner is faster. My top speed on this instrument is 37 words a minute when I am reading silently and for optimum comprehension. However, when I am trying to detect the size of print, or read low-grade or fancy script-like type faces, my reading speed may be as low as five words during the first minute. My students are using the Visotoner at speeds up to 15 words a minute.

How the student will use these machines depends, again, on his needs and capacities and the amount of training he has received. After about 30 to 40 hours of practice, students can learn to check material they have just typed. Additional practice is needed for reading typed correspondence, bank statements, labels, and encyclopedia entries. Some advanced uses—such as reading directions on a package—require a knowledge of printed format. The user must know not only how to decipher printed words, but where on a given piece of printing to look for the particular information he is seeking.

Other machines, intended to supplement and augment the Visotoner and the Visotactor, are now under development. They give promise of enabling blind persons to read a wider variety of materials at even higher speeds.

□ One of these machines is the Cognodictor, which is being developed by Mauch Laboratories under a research contract with the Veterans Administration.² Production models of this device (they are about the size of a portable typewriter) are now being built. The Cognodictor spells words audibly, but could be modified to give a braille output. The machine identifies upper and lower case letters in most common type fonts and should permit more rapid reading, perhaps at speeds as high as 80 or more words a minute. A Visotactor, dubbed the Visotactor A, is used with the Cognodictor; it serves to locate the print, size it up, and track exactly on the line. Only when this has been done will the Cognodictor spell out the words. The Visotactor A must also be used to read numerals and other symbols which the Cognodictor cannot "recognize." The Visotactor is detachable from the faster, but more cumbersome, Cognodictor for portable use as a direct translation tactile output device in remote locations. The eventual cost of the Cognodictor will be several thousand dollars.

We will continue to need the smaller machines like the Visotoner for their low eventual cost (several hundred dollars, including accessories) and for their high degree of versatility. They can, for example, be used to read italicized print, numerals, and other symbols and characters used in foreign languages but not found in the English alphabet.

Reading Speeds Vary with Individual

Knowledge of printed format is desirable

A Reading Machine with Audible Output

Smaller devices will remain useful for their versatility

It seems likely that the Cognodictor will be for the Visotactor and the Visotoner what the typewriter is for the pen. For example, if a blind person wanted to read a magazine article, he would use the Cognodictor which, with its electronic logic circuitry and spelled-speech vocabulary, would permit rapid reading. But if he wanted to read the figures on his bank statement, or "see" the lines on a printed check or form—tasks which require slow, accurate reading—he would use the Visotactor or Visotoner.

□ The V.A. is also sponsoring research at Haskins Laboratories in New York City to develop high-speed outputs for computer-assisted library services.³ The output of the Haskins equipment is English sentences. Outside the V.A., researchers are working on other types of reading machines and other outputs for existing devices. Some of these will have audible outputs and some will have tactual outputs.⁴ If we manage to perfect several kinds of output for the same basic machine, we may be able to select the output to be used according to individual ability and preference. However, in order to realize this possibility and, at the same time, keep production cost within reason, we will have to take care to design both outputs and basic systems with built-in compatibility. If we do this, we should be able to avoid a repetition of the chaos and dissension which preceded the development of the uniform braille code.

□ How soon will we be able to provide these machines to large numbers of blind persons? Production models of the Visotoner and the Visotactor exist, but, because of small quantity production, the unit cost (\$1,875) is currently too high to encourage individual investment. Agencies, however, might want to consider buying machines and using them to train teachers and users, who could later borrow them for their personal use. If several agencies pooled their orders, it would be possible to schedule large production runs which would reduce the cost of the machines. The V.A., for example, recently took delivery of 30 Visotoners and 10 Visotactors for extended clinical trials. I was recently asked "after taking the Hadley School Home Study Visotoner Screening Course, could a person go to the V.A. Hospital in Hines, Illinois for further training and, if so, what would be the cost?"

My response was that, in the case of veterans who prove capable of learning the skill, the answer is "Yes." The cost to the veteran would be the time and effort he put into the training. Upon completion of the training, he would be provided with a reading machine on an indefinite loan basis, with the proviso that he make practical use of it. He would remain at the V.A. Hospital for several weeks, after which he would take a machine on indefinite loan, and continue to practice and take periodic lessons at home until he had completed the course.

For a civilian, the answer would also be "Yes," but he would have to have other resources, such as the backing of a local agency. It might even be possible to train him to teach the skill to other people in his own locality, but in such a case, the cost of transportation and maintenance would not be borne by the Veterans Administration. Perhaps local organizations could ap-

Computer-assisted Library Services

When Will These Machines Be Available?

V.A. would finance training for veterans

ply for educational or rehabilitation research grants to finance such projects.*

□ Our need for sensory aids grows as technology puts more and more information into print and under the glass covers of meters and dials. To make this information available to blind persons, I believe that we will continue to need three types of reading devices or systems: (1) Direct translation reading machines, like the Visotoner and Visotactor outputs; (2) personal reading machines like the Cognodictor with electronic circuitry; (3) computer-assisted library services, with—at a minimum—the choice of an audible or tactile output. Such outputs should be useable at a variety of speeds, and it should take no more than a few days to get material to the person requesting it.

Fifty years ago, Mary Jameson⁵ of Britain demonstrated the first optophone, which read at a speed of one word per minute (today, she is still helping to evaluate new equipment). We have made tremendous progress since then. We have the Visotoner, the Visotactor, the Cognodictor, and the larger computer-assisted machines. And, considering the rate of technological progress to which we have become accustomed, we should be able to make even greater progress in the next few years, supplementing these devices with faster, more versatile devices to give blind persons an ever-larger repertory of tools with which to read the printed word.

Three Kinds of Devices and Systems Will Be Needed

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* Plans are now being made to conduct seminars at the Hines Hospital for future reading-machine teachers. Persons interested may request more information from Eugene F. Murphy, Ph.D., chief, Research and Development Division, Prosthetic and Sensory Aids Service, 252 7th Avenue, New York, N.Y. 10001.

Can a Blind Person Learn First Aid?

The blind person, like any person, needs to maintain an awareness of himself as a whole being, and a respect for his own individual person and personality. As a rule, he will find it easier to do this if he can play an active role, not only in the nuclear family unit, but in the community at large. It is in this last area—the community—that many blind persons have difficulty in finding a role and functioning within it. And one of the reasons for this is that, frequently, they do not possess the skills required for effective community service.

□ Many of the programs at the Center for the Sightless deal with the role of the individual in the community, but most of them do so only in a theoretical way. There are group counseling and conversation groups, which the participants can use to develop their ideas on voting, civil rights, marriage, and the family. But this is not enough. If an individual is to play his social role, he needs to translate his ideas into action.

It was this consideration, among others, that prompted us to establish a pilot first aid course for blind adults. The course had an immediate, practical objective—to teach a useful set of techniques. It also has a broader objective—to add to the number of ways in which the clients could participate in society.

The course was set up by the Center, in cooperation with the local chapter of the American Red Cross. The text was the standard *First Aid Manual*, Fourth Edition. Teaching the course were the local Red Cross director and one volunteer. Staff members of the Center for Sightless did the program intake—that is, they interpreted and evaluated the capabilities of the candidates for the course.

□ Since this was a pilot program of a type that, to our knowledge, had never been tried before, intake was restricted to 12 persons who were well known to us and who had been closely associated with agency activities for some time. Most of them were totally blind, and, with one exception, all were adventitiously blind. Most of them were over 50, and the youngest was over 30. Each of the individuals had a good body image. The group was made up of six men and six women.

The twelve trainees dealt confidently with concepts of things and space—concepts which sighted persons handle easily but which often come hard to blind persons. Adjustment to blindness in the group ranged from “fair” to “very good,” and whatever pathology was present did not hamper normal functioning or impair the learning process to a significant degree.

ROBERT A. DeFOREST

Mr. DeForest is executive director, Lorain County Center for Sightless, Elyria, Ohio.

The Need to Translate Ideas into Action

Intake Was Restricted to a Select Group

To teach blind persons techniques for which sighted persons normally make heavy use of their eyesight presents problems, of course, but these problems are by no means insuperable. We found that combination of verbal instruction and tactual presentation enabled the blind trainees to learn the full range of material normally presented to sighted trainees.

First the instructor would explain a given accident, wound, or other condition. The students would memorize this information, absorbing about as much information as a sighted group. Then the instructor would use tactual presentation (employing aids to be described later) to teach practical methods of diagnosis and treatment.

□ We found that, in almost all cases, the fingers could do the work of the eyes in determining the nature and extent of an injury or other condition. For example, vision is not needed to detect bleeding from a serious wound. The fingers can feel the gummy consistency of blood coming from a cut or abrasion, and the spurting of blood from an arterial wound. Pressure points, areas on the body where manual pressure can be applied to stop bleeding from arterial wounds—are a bit harder to find without sight, but in any case they are no longer emphasized as much as they were a few years ago. The recommended procedure now is to locate the wound and place a compress directly over it to inhibit bleeding until medical assistance arrives, and this can be done simply by feeling for the source of the bleeding. This procedure presents some danger of infection, but the danger of infection is not as great as it once was, since antibiotics can usually be obtained within a few hours after an injury occurs.

Nor is vision needed to distinguish among the various types of wounds—e.g., punctures, abrasions, incisions, or lacerations—once the trainee has learned how each of these wounds feels. Likewise, the student can learn to distinguish by touch among the various types of fractures.

In some cases, touch is not sufficient and the blind person must resort to other means. When someone has taken poison, the person offering first aid must identify the poison in order to take appropriate measures. If he can locate the container, he can probably identify the poison by its odor. If this is not possible, he can ask a bystander to locate the poison container and read the label. Or, if the victim is conscious, he can ask him what kind of poison he took.

In the case of sprains the person offering aid will rely both on his sense of touch and on the reactions of the victim. He will feel around on the injured limb until he locates a swollen area, then apply pressure in this area until he locates the spot in which the victim reports the most intense feeling of pain or tenderness.

Even shock can be detected without vision. Obviously, a blind person cannot detect such symptoms as pale skin and blank, lackluster eyes. But he can detect the other symptoms—shallow, irregular breathing, weak or imperceptible pulse, vomiting, a cold moistness on the skin, restlessness, loss of alertness and extreme thirst. These symptoms are sufficient to give a clear indication of shock.

(Continued on page 271.)

Verbal instruction and tactual presentation

The Fingers Can Do the Work of the Eyes

Poisons can be identified by smell

Physical Education for Blind Children in Public Elementary Schools

In this paper I wish to discuss the following question: What changes or modifications would be needed to integrate blind and/or severely visually impaired children into an effective elementary school physical education program so that they could achieve optimum growth? To expand upon this question and to work toward an answer, we will employ the following organization: We shall first have to develop a philosophy of physical education for blind children. Then we shall discuss ways of putting this philosophy into action. Finally, we shall discuss suggested modifications of activities and methods of instruction.

□ One of the most important things about physical education is that it is for *all* children, not just those who are especially good at athletics. Oberteuffer¹ stresses that any youngster who is well enough to be in school is well enough to receive a physical education adapted to his needs and conditions. Physical educators today believe that "the handicapped or atypical child can best learn to live a normal life if he participates as fully as possible in the school life of normal children."² In fact, students who have any permanent handicap need help "in making better adjustments to their disabilities and in finding ways to compensate for them."³

This is especially true in physical education. Fait says: "Blind children have the same needs for physical activity as other children."⁴ And Cutsforth observes that, "In order to achieve a uniformity of motor development, the child, whether blind or seeing, must experience a diversity of muscular activity."⁵ As with most handicapped children, partially sighted or blind youngsters will want to participate as nearly as possible on an equal basis with their classmates and giving them this opportunity is one of the greatest contributions the physical education class can make toward their well-being.⁶ Furthermore,

Nearly all the varieties of activities offered to normal children in the physical education curriculum can be presented to blind children. Some require more adaptation than others, but blind children enjoy and need participation in the same games, sports, and physical activities as other children.⁷

Many people agree that blind children need the physical activity, but they want to know more about considerations of safety and extra supervision for blind children in physical education programs. Buell states: "Public schools which are giving physical education to all students have found that accidents and injuries are no more common among blind children than among the rest of the student body."⁸ In another article, he cites several examples to further dispel the fear that blind children have more accidents than sighted children. "Recently Mr. William A. Flynn, principal of Buena

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Physical Education Is for All Children

Vista School in Walnut Creek, California, said: 'The accident rate on campus during normal play activities and physical education classes is 99.9 percent nil . . .'⁹

Elbert J. Stark, chairman of boys' physical education at Washington Irving Junior High School in Los Angeles wrote (as quoted by Buell), "From observation, informal reports, and the lack of statistical data, there is no evidence in California that blind children have any more accidents than their seeing peers."¹⁰ Concern for the safety of all children is important and safety should be taught, but an excessive concern for children who have no sight is unjustified, especially if safety has been a part of the instruction.

Having a blind child in class need not mean more supervision for the physical education teacher. This problem can be solved by pairing a blind child with a classmate who has normal vision. In almost every class there is a boy or girl who is willing and capable of giving only necessary assistance. It is very helpful to the members of the class to know something of the needs, desires, and abilities of their blind classmate.¹¹

The lack of extra supervision, then, need not deter or hinder blind children from participating in an active physical education class.

To summarize the philosophy of physical education for blind children, we find: Blind children, like all children, need a well developed and highly active physical education program to help them achieve their greatest possible potential.

□ Of great significance in implementing any program, and in carrying out any philosophy is the teacher or instructor himself. To be effective, the teacher must understand the children he is teaching. It follows, then, that an instructor who has any atypical children in his class should also strive to understand their capabilities and needs.

An instructor who understands blindness and the needs of the blind "will not make the mistake of overprotecting students and hindering the development of self-reliance."¹² The attitudes that teachers have toward blind or partially sighted students is of great importance. If the teacher is over-protective of the handicapped students in the class, the class will pick up this attitude. Acceptance of the student for what he is and appreciation of the talents and abilities he displays will be the attitude of the class if it is also the attitude of the instructor.¹³

But this is a general philosophy. Putting philosophy into action will require adequate preparations, as well as attention to the task of instruction.

□ Making adequate preparation will entail several things. First, the activity to be taught must be understood by the teacher, and must be understood in terms of how it can be taught to a blind child. Huffman¹⁴ observes that ". . . any teacher who thinks of a game in the light of how it could be taught through the use of sound instead of sight will be able to devise and improvise where necessary—will be able to make many games possible for the enjoyment of a totally blind child." The instructor might also put on a blindfold and do the activity himself before teaching to get a better idea of what the activity will involve for a blind child.

No evidence that blind have more accidents than sighted

The Teacher Must Understand the Children's Capabilities and Needs

The Teacher Should Think In Terms of Sound Rather than Sight

Several other things will have to be considered before the actual instruction period begins. The degree of residual vision should be ascertained, as well as the degree to which the students have developed compensatory skills.¹⁵ Furthermore, the blind students should be thoroughly introduced to an unfamiliar playing area before being allowed to play. Of primary importance to the blind children is to know the size and shape of the area and the nature of its boundaries.¹⁶ Methods for conveying this information will be discussed later.

Since the blind children will have to memorize the game as well as the surroundings, simple games should be introduced first, and complexities slowly and logically added later. Children's groups should be kept small enough to permit the leader to help individual children. The teacher should permit the leader to help individual children. The teacher should keep in mind that when a blind child thoroughly knows a game, he should have the opportunity to enjoy his skills with seeing children.¹⁷

Physical activities for visually handicapped students can be arranged so that little or no special supervision is required on the part of the teacher. As mentioned earlier, this can be done by pairing a blind child with a sighted classmate.¹⁸ Naturally it is a logical procedure to have the partially seeing and blind students equally divided between the teams. This prevents any one team from feeling at a disadvantage, and encourages the sighted team members to think of the blind students as teammates, who can help the team to win if everyone works together.¹⁹ The captain and fellow team members will help: How to give an atypical child his fair chance to play and at the same time give the team a chance to win presents a real problem in human relationships.²⁰

One final consideration:

It is extremely important that the games chosen be difficult enough to hold the children's interest. Hunt observes that " . . . the blind need encouragement, a permissive approach, and the stimulation of the imagination, but they do not want pampering; their fun is limited when nothing is demanded of them."²¹

□ The second step in putting the philosophy into action is the actual task of instruction. In teaching blind persons, it is extremely important to remember that they must *feel* the demonstrations; they cannot rely on sight, and verbal explanation alone is not enough. The introduction of a new skill requires a kinesthetic approach. The instructor, and perhaps a few of the students who have learned the skill, should demonstrate it, while the sightless students examine with their hands the parts of the body involved. At times it may be helpful and even necessary for the instructor to place the student's hands, feet, or other parts of his body into the desired positions. Lengthy verbal explanations, however, should be avoided, although clear concise descriptions which accompany the kinesthetic approach may be used with great effectiveness. In planning his teaching methods, a sighted instructor may gain greater insight into the problems which the skill will present to his sightless students if he closes his eyes while performing the skill.²²

Simple games should be introduced first

Blind Students Must Feel the Demonstrations

There are several pieces of equipment which an instructor might use as teaching aids. One essential item is a whistle; it may be blown to indicate the location of their instructor, to signal for attention, or to convey other, prearranged signals. Another useful item is the megaphone.

Special equipment

The players will need to be given a great many details about the progress of the game, details which would be naturally observed by those players with normal vision. For example, if a kick ball game is in progress, the blind players will need to be told which players are on the bases, who will kick next, where the players are, and when an out or a score is made. Here again, if the instructor will try to put himself in the position of the blind player and try to think of the game information that he would want to know as the game progresses, this will guide him in selecting the most useful information to give the players.²³

Players must be kept abreast of the game's progress

Another advantage to this running commentary is that it tells the blind children where the instructor is and may thus make them feel more secure. They can also gain a sense of security from knowing where other players are. Because of this, participants should be encouraged to talk to each other and to use names, particularly if they are not well enough acquainted to recognize one another's voices.²⁴

□ Having dealt with methods of instruction, we can move on to the activities themselves. Many activities which would normally be considered for "normal" children can also be considered for inclusion in the repertoire of activities in which blind children would also participate. However, some activities might take on greater importance when viewed in the light of what would be good for the blind children. For instance, as suggested earlier, it is extremely important to give a blind child a thorough introduction to an unfamiliar playing area. Ascarelli has gone into this and several related ideas rather extensively and I quote from her at this point:

Blind Children Can Play Many Games Played by Sighted Children

Awareness of posture and fluidity of movements depends to a large extent on the child's attitude toward space; unless he is sure of his surroundings, and feels safe in moving about he is hesitant and slow in his movements and more concerned with fear of obstacles than with proprioceptive sensations. It is important, therefore, to introduce the child to the training room pointing out empty spaces, walls and furniture, encouraging him to walk around, explore the room, reassuring him and vocally guiding him. After this has been accomplished, . . . it is desirable to establish one point of reference. This point of reference is helpful at the beginning, mostly to give the children a feeling of continuity from lesson to lesson, a place to start from, and to go back to. . . . Rolling on the floor, walking on all fours, imitating trains, running all together, standing and lying down side by side, walking holding hands with outstretched arms are all activities that help the children to evaluate the empty space of movement and gain assurance of the evenness and solidity of the floor. As they acquire confidence, they can be encouraged to run alone and specific instruction may be given. . . . Rhythmic music, clapping hands while walking, and in general all games suggested for young children may be used to teach the children to stop and go, to listen, get ready, alternate fast and slow movements, etc. . . . Position may be stressed by emphasizing range or movements and limitations when the child is standing facing a wall, with his back to the wall,

or lying on the floor. . . . Activities learned indoors should be repeated outdoors. Vocal contact in running is at first essential but at the same time the child should be encouraged to follow sounds (bells, etc.) then to move as quietly as possible and listen as carefully as possible.²⁵

Ascarelli, then, suggests using some of the activities generally used by primary grade teachers to teach body awareness and spatial orientation; very little adaptation is needed to teach these things to blind children. In addition, the instructor should keep in mind the kinesthetic approach discussed earlier.

In addition to the activities which can be enjoyed by all students, there are many which might have special value to visually impaired students. Among these are singing games, folk dances, relays, games of low organization, story plays, apparatus, swimming, stunts and self-testing activities, winter sports, and lead-up games for the traditional American team games.²⁶

We shall discuss in detail a few of the activities from the preceding list: games of low organization, relays, apparatus play, and swimming.

"Teacher ball" is one game of low organization which is easily adapted to a group of children having one blind child or more. The following modifications can be employed: The child who is the teacher calls out the name of the person to whom he intends to throw the ball. The person whose name is called gets ready to catch the ball, and calls out the name of the "teacher," whereupon the ball may be thrown. Reverse the process to return the ball. The advantage of this modification is that it would enable the blind child to follow the action just as the other children do, and also to participate either as "teacher" or as "student." Another suggestion: If the blind child has some residual vision, it might be helpful to use a yellow or white ball, which he can see more easily than a dark-colored one.

Another easily adapted game is "flying dutchman." This game might be modified to require the couple who are doing the tagging to immediately swing out away from the circle after making the tag, so that the couple tagged could stay close to the circle, thus avoiding collisions.

□ With the following modifications, leapfrog may be adapted for integrated groups: Instead of having several teams of six or eight members each, limit each team to two members, one being a frog, and the other a rock. At the starting signal, the frog jumps the rock, and immediately becomes a rock himself while the previous rock becomes a frog and makes his jump, and so on. This provides for plenty of activity. The two partners can encourage each other verbally (the blind child will get his direction cues from his partner and report of his team's progress from the sounds of other teams around him).

There are a multitude of relays in which couples are involved, and, like leapfrog, they can be modified. Sometimes no modifications would be necessary. In a wheelbarrow race, for example, one person might walk on his hands while a partner carries his feet—the sighted partner could give verbal directions whether he was acting as the wheels or the legs.

Some activities have special value to visually impaired students

"Teacher ball": a game of low organization

Adapting Leapfrog for an Integrated Group

Sometimes the presence of blind children in the class will require the adoption of special safety measures. To give the reader a feel for how this can be done, we shall discuss adaptive measures for the use of one piece of playground apparatus—the slide. Naturally, the children should always go up the steps, and not up the slide portion itself; they should “wait turns” and climb the steps one child at a time—as all sighted children should be cautioned to do in any case. When the child ahead of the blind child has gotten to the bottom he should call out that all is clear. After the blind child reaches the bottom of the slide, a child at the steps should call out to him to give him a proper line of direction for returning to the steps of the slide. Safety procedures for other types of apparatus can easily be worked out with thought and common sense: most of the safety rules normally used for playing on apparatus would need few, if any, changes.

For our discussion of swimming, we turn to a book by Donald K. Matthews and several other authors entitled *The Science of Physical Education for Handicapped Children*. In this book, there is a unit plan for teaching swimming to blind students. Though the whole unit is worth consideration, due to limitation of space, only a portion of it—the one concerned with orientation—will be cited here:

Area 1: Orientation

This phase is of the utmost importance to the ultimate accomplishment of the sightless individual. If he is to succeed in the water, he must understand his surroundings. He should first be taken around the pool area on an exploratory trip, with the instructor calling attention to the shallow and deep ends of the pool, doors, drinking fountains, and other important landmarks. Following a thorough, well-conducted tour of the pool area, the children may be introduced to the water. All instruction should take place at the shallow end until the pupil demonstrates sufficient ability to swim in deep water. He should be shown where ladders, scum gutters, and pool ends are located. He should be taught how to tell by the slope of the bottom whether he is headed toward shallow or deep water. When a blind child is familiar with his surroundings, and [has] his landmarks firmly located in his mind so that he is confident in his new environment, actual instruction may begin.²⁷

□ There is a definite technique to swimming, and it must be taught. A kinesthetic approach, of the sort cited earlier, is best. Because they cannot learn by watching others, it is all the more important that blind students be taught the strokes accurately and carefully, especially since faults in style are difficult to eradicate later. Land drill is very important and creates a feeling of confidence; it gives the children a chance to learn and practice the basic movements before they have the additional excitement and difficulty of entering the water. In the water with swimming caps on, girls have a hard time hearing the coach and easily become confused. Also, both boys and girls quickly lose their sense of direction as soon as their heads or faces are immersed. Correct breathing should be taught from the very first part of the land drills, so that the students not only know at what mo-

Special safety measures may sometimes be necessary

Kinesthetic Approach Is Best Way to Teach Swimming

ment to breathe in or out, but actually co-ordinate this activity with arms and legs before meeting the water.²⁸

Style, rather than speed, should be of major concern in all strokes. Speed will come with good style.²⁹ After a student has learned to swim quite adequately, a few practice lengths of a new pool should be sufficient to give him a "feel" or an idea of the size. The importance of swimming for blind people is summed up by Daniels:

Style is the major concern

After swimming skills have been gained it is one sport that permits freedom of activity to an extent not generally experienced by the blind. Furthermore, blind students can swim just like anyone else, no modifications of the activity being required.³⁰

□ The physical education offered to blind children should never become a second-rate imitation of that offered to sighted children. They, no less than their sighted classmates, need and deserve the opportunity to get exercise, improve their coordination, learn physical skills, and develop a sense of teamwork and fair play—all things that they can do more easily in a physical education class than anywhere else. In my opinion, the best way to insure that they will have this opportunity is to integrate them into classes with sighted children. I have presented here some suggestions which, if imaginatively applied, can facilitate this integration.

**Integration Can Insure Quality
Physical Education**

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3. Kozman, H. C., et al. *Methods in Physical Education* (2nd edition). Philadelphia and London: W. B. Saunders Co., 1966, p. 52.
4. Fait, H. F. *Special Physical Education: Adapted, Corrective, Developmental* (2nd edition). Philadelphia and London: W. B. Saunders Co., 1966, p. 52.
5. Cutsforth, T. D. *The Blind in School and Society*. New York: Harper, 1948, p. 47.
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12. Daniels, A. S. and Davies, A. E. *Adapted Physical Education*, (2nd edition). New York: Harper & Row, 1965, p. 268.
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14. Huffman, M. B. *Fun Comes First for Blind Slow-Learners*. Springfield, Illinois: Charles C. Thomas, Publisher, 1957, p. 73.
15. Fait, p. 54.
16. Fait, p. 55.

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18. Buell, "Developments in Physical Education," p. 202.
19. Fait, p. 54.
20. Halsey, pp. 38-39.
21. Hunt, p. 83.
22. Fait, p. 56.
23. Fait, p. 56.
24. Hunt, p. 82.
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26. Daniels, p. 270.
27. Mathews, D. K. et al. *The Science of Physical Education for Handicapped Children*. New York: Harper & Brothers, 1962, p. 52.
28. *Physical Education, Part II*. Bristol and London: St. Stephen's Bristol Press, Ltd., n.d., p. 21.
29. *Physical Education, Part II*, p. 22.
30. Daniels, p. 270.

Can a Blind Person Learn First Aid?—Continued from page 263.

□ Throughout the course, we used various tactual aids to supplement verbal instruction and give the students a feel for the various wounds and methods of treatment. To lend realism to our discussion of wounds, we used plastic facsimiles of the various types of wounds, as well as artificial blood, which has the same slightly adhesive feeling as real blood. To teach mouth-to-mouth resuscitation, we used life-size mannequins at first, then let the students pair off to practice the techniques they had learned on the mannequins.

Our experience with this pilot course proved that, without an excessive amount of special equipment, and without specially trained instructors, blind persons could learn all of the basic skills of first aid. Our 12 students emerged from the course equipped with a new tool which they could use to translate their desire to serve the community into action.

**Tactual Aids Supplemented
Verbal Instruction**

Implications of an Integrated Adjustment Training Service for Blind Adults

Early in 1964, the Rehabilitation Institute in Detroit set up a research and demonstration project* designed to show that a pre-vocational adjustment training program for blind adults could be carried on within the setting of a general rehabilitation center. The project has now completed its fifth year, and we are ready to give an account of the speculative knowledge that we have gained from it.

□ We have achieved some of the goals we expected to achieve; we have failed to achieve others. We have, moreover, in the course of the project, established new goals and revised old ones. One of our most important accomplishments has been to achieve a ratio of successful rehabilitation, as measured by the placement of clients in jobs, which is about the same as the ratio reported by agencies serving blind persons exclusively. In fiscal 1967-68, we gave comprehensive and evaluation services to 83 clients. Now, less than one year later, 19.3 percent of these clients have been placed in jobs. In fiscal 1966-67, the percentage was 25.

For the purpose of these statistics, independent homemakers were considered as having been placed. But students, persons enrolled in special college preparatory programs, and persons who have gone on to more advanced rehabilitation training are considered not to have been placed.

The integrated rehabilitation training program is more or less metropolitan. Its primary area of service is Detroit, but it also serves other parts of Michigan. Its most important feature is that it is exclusively non-residential. This means that behavior problems that affect only the client's personal life do not normally come to the attention of the Institute staff who are therefore free to devote their attention exclusively to those problems that might cause trouble in a parallel employment situation. Only where problems in personal or social behavior are so great that they interfere with the client's functioning or his concentration on the task of rehabilitation do they become a subject for discussion in rehabilitation counseling. And when they do, they can be dealt with in such a way that finding their solution becomes a lesson in essential realism—the counselor deals with them primarily in terms of their probable impact in a job setting.

* This program grew out of a concept originally developed by Dr. Joseph N. Schaeffer, director, Rehabilitation Institute and head of the Department of Physical Medicine, Wayne State University, Detroit. It is presently being run as SRA Research and Demonstration Project 148OS-68-4.

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**Many Goals Were Achieved;
New Ones Were Established**

The program is non-residential

The non-residential setting has its most significant effect in the area of mobility training. The client must use independent mobility to get to and from the training center, and he must rely almost exclusively on city buses for transportation (in Detroit, blind clients can ride these buses without charge; hence, they do not hesitate to use them freely in all kinds of training assignments). This situation has one drawback: A blind person is sometimes obliged to travel by bus and make full use of his white cane before he has completed all the formal steps of mobility training. But even when this happens, there are advantages which offset the disadvantages: When, despite the fact that he has not completed all of his training, he succeeds at this task, the client gets a sense of increased independence which leads to a strong boost in morale. This, in turn, gives encouragement to the client's family, who are able to witness a daily growth in his freedom of movement as they see him leave home and return by himself. This gradual, steady, visible growth seems to us to be preferable to the kind of growth achieved in residential training, where the client returns after several months of training to a family that expects him to be either the same person or an entirely different person. In non-residential training, the family has a share in the rehabilitation growth of the client. Finally, non-residential training allows the client to practice mobility skills in the familiar setting of the city in which he lives and in which he will probably go on to study or work.

The integrated setting also helps the clients to accept their blindness and adjust to it. Placed in constant, daily contact with other persons who have handicaps or serious medical problems, they can learn to see their own disability in a larger context. This, in theory at least, makes blindness less emotionally dramatic. A blind person receiving training in a center established exclusively for him may develop a tendency to feel "special" in the wrong way—that is, to feel over-protected, and therefore to accept himself as an object of pity. Admittedly, not all clients in non-residential settings gain a larger perspective, nor do all clients in residential settings pick up the attitude that they should be given special protection. But our experience seems to indicate that an integrated setting may be preferable in this respect.

□ The integrated program does, however, have one obvious and predictable disadvantage. Because it must compete realistically with other patient services within the Institute, its physical facilities are somewhat restricted. In a center organized exclusively for the blind, the rehabilitation of blind clients is the "be all and end all" of the agency's existence; in an integrated center, of course, it is not. Both the professionals conducting the program and the clients themselves must learn to share the facilities and, on occasion, to accept less than the ideal in terms of space and freedom of scheduling. To compensate for this, the integrated center offers a greater breadth of scheduling, covering a broader range of disciplines, than is customarily offered by a specialized center. Without leaving the center, the client can avail himself of psychiatric treatment, social services, and physical

The program's most important effect is on mobility training

The integrated setting helps blind persons accept blindness

Blind Program Must Compete for Facilities and Services

and occupational therapy. These, of course, are offered in addition to the usual specialized services of communications, rehabilitation, counseling, and mobility training.

The integrated program also provides a public relations bonus. At first, it was feared that the blind students, traveling with their canes, might get in the way of patients using wheelchairs or learning to use crutches. But this has rarely happened—probably because the blind student has constant access to professional mobility instructors. The fact that there have been few problems in this area has helped to improve the image of the blind person in the center at large. The clients have been able to demonstrate to the other patients, and to the staff members of the Institute, that a blind person is capable of traveling independently. This has given the staff members of the rehabilitation program many opportunities to discuss the rehabilitation of blind adults with student groups in several medical disciplines—some of them connected with adjacent hospitals and some with Wayne State University.

□ In summary, we believe that, though on a relatively small scale, we have demonstrated that training blind clients in an integrated setting is both desirable and feasible. We will need more clients fully to confirm this belief. But the performance of the clients we have already trained offers strong evidence that a general rehabilitation center offers unique advantages to persons who are learning to adjust to their blindness.

A public relations bonus

An Integrated Program Offers Unique Advantages

Publication Lists Prevalence of Impairments

Prevalence of Selected Impairments, a publication of the National Center for Health Statistics, U. S. Department of Health, Education and Welfare, presents statistics on the prevalence in the United States of impairments involving vision, hearing, speech, paralysis, absence of extremities, and orthopedic defects.

□ Each impairment group is discussed separately. The demographic variables by which the data are distributed include age, sex, color, geographic region, and family income. In addition, information is presented on the chronic activity limitation associated with each type of impairment. The publication notes that cataracts were the leading cause reported for visual impairments.

The publication, No. 1000-Series 10-No. 48, is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 at 75 cents a copy.

Cataracts Were the Leading Cause of Visual Impairment

Concerning Certification of Orientation and Mobility Specialists

When considering the social atmosphere in our country today, we are constantly faced with the concept of change. This point becomes apparent through an examination of phrases and words such as "human rights," "the sex revolution," "black power," "the war on poverty," "anti-establishment," "ecumenism," "draft card burning," and "lowering the voting age."

Mention any one of these issues in a local tavern, at a cocktail party, or on a television talk show and a host of "authorities" on the subject quickly emerge.

□ The specialty of orientation and mobility lends itself quite well to today's social atmosphere. Mention "certification of mobility specialists" at any formal or informal gathering of workers for or of the blind and the atmosphere becomes quickly charged with both rational and irrational discussions concerning the future of the profession. This paper will explore several points of view on this issue and present proposals which might prove beneficial in establishing a framework within which we can gain perspective in planning for the future. To do this, a brief review of past and current developments is necessary.

In Europe during World War I, it was learned that search dogs used for the German Army could be trained to help blinded soldiers and veterans become independently mobile. As a result of this, the first guide dog school in this country was established in 1929, thus providing blind persons in the United States with the first organized system for learning independent travel. In retrospect, we must assume that the people who provided this service were from various backgrounds and various educational levels. We must assume further that they had a good ability to relate to people on an interpersonal basis and a thorough knowledge of dogs and training procedures.

During the latter stages of World War II, it was learned that a blind person could make use of a cane as a travel aid, provided the cane was used in an efficient manner and provided the blind person was oriented to his environment. We must again assume that the people who provided cane training at that time came from various backgrounds and various educational levels. We must assume further that they were able to relate successfully to people on an inter-personal basis and that they had a thorough knowledge of the cane techniques, in addition to a complete knowledge of methods for becoming oriented to the environment.

□ These early developments taught us that blind people can learn to be independently mobile in an efficient and safe way if they are properly trained. We also learned that mobility training should be systematic and that the people who provide the training should be thoroughly prepared to do that

This article originally appeared as a pamphlet published by the Greater Pittsburgh Guild for the Blind.

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Certification Is a Controversial Subject

Early mobility teachers came from various backgrounds

The Time Has Come for Certification and Standardization

job. We have learned from the past that, in order for the service of mobility to exist, there must be a method, someone to teach the method, and someone to teach the teacher. This is the foundation on which rests the specialty of orientation and mobility.

From these early beginnings, the profession of orientation and mobility, along with other services for the blind and visually handicapped, has arrived at the point at which all professions must eventually arrive—standardization of services and certification of personnel. These two points are extremely critical, for the directions we take with these can have either a detrimental or positive effect on the entire field of service to the blind and visually handicapped.

In the current discussions concerning certification of mobility personnel, three points of view seem to stand out among all others. One view suggests that only those persons who received their training at an approved graduate level program supported in part by Rehabilitation Services Administration or Office of Education should be permanently certified to teach mobility. Another point of view maintains that mobility specialists trained at the undergraduate level should also be qualified for permanent certification. A third point of view holds that professional mobility specialists can be provided to the field through an in-service training program at an agency.

This writer has had the opportunity to matriculate in a graduate orientation and mobility program; observe the undergraduate program at Florida State University and supervise one of its interns; and coordinate the training of seven mobility specialists at the post-bachelor's level in the agency. These personal observations have revealed that the curricula and quality of learning experiences at all three facilities are nearly identical and are in complete agreement with the curriculum and quality of learning experience suggested in the COMSTAC Report.

□ In addition, it has been observed that the mobility specialists from the three types of training facilities have been equally qualified and knowledgeable about the performance of their jobs. Based on these observations, it is my opinion that the ability to teach orientation and mobility is not determined by the college degree or place of training. Nor do graduate programs, in their present structure, necessarily guarantee the most professional teacher preparation available.

I believe the orientation and mobility curricula and learning experiences are the chief factors in determining the effectiveness of mobility specialists training programs. This, along with a sincere and deep conviction to meet the needs of the blind, coupled with the proper personality configuration, and on the basic requirement of a bachelor's degree, will assure the field a professional who will be respected by all. Therefore, I propose that we standardize curricula and training experiences for mobility specialists regardless of where the training is offered.

Training mobility specialists at the agency level seems to draw some criticism. This subject, understandably, conjures up the profession's past experience with unqualified instructors, haphazard training, and similar un-

Three points of view on certification criteria

Ability to Teach Orientation and Mobility Is not Determined by Place of Training

Teaching mobility specialists at the agency level

professional attempts at providing the service of mobility. There is also some concern that standards for this type of training program would be difficult to establish and maintain at the national level. These are serious and legitimate concerns that obviously need to be dealt with by an appropriate certifying body. However, the mobility training program at Hines Veterans Hospital clearly demonstrated that an in-service mobility training program can produce superior personnel provided the program is organized, systematic, and thorough. A current example of the effectiveness of this type of training program can be noted through a brief description of the mobility specialist training program at The Greater Pittsburgh Guild for the Blind.

□ Since late 1965, the Guild has provided a comprehensive curriculum for the in-service training of mobility specialists. The training objective is to teach individuals with a minimum of a bachelor's degree the methods by which a visually impaired person can become independently mobile. Physical and personal qualifications required for admission to training are in line with those outlined in the COMSTAC Report. In addition, candidates are interviewed by a committee composed of the director, assistant director, and the department chairmen at the Guild. It is upon this committee's recommendation that candidates are admitted or rejected.

The Guild's curriculum includes the history of rehabilitation, history of rehabilitation for the blind, practicums in orientation and mobility, psychological aspects of blindness, medical aspects of blindness, social and cultural implications of blindness, and courses related to curriculum development.

The training lasts for approximately six months. During the first eight weeks of training, the individual is required to: log between 75 and 100 hours under the blindfold in mobility experiences; take three written and two oral examinations; write three documented papers; and, while under observation and supervision, teach 80 class periods of mobility to blind persons having various disabilities.

Students then enter a 15-week internship teaching mobility under supervision, and they must compile between 350 and 400 clock hours with both congenitally and adventitiously blind clients. The types of clients taught must comprise a variety including those of average, above average, and below average intelligence; those with cerebral dysfunctions, diabetes, and other disabilities; and those in the geriatric and under 18 age groups as well as the age groups 18-65 years. Throughout the six months of training, the student is rated by instructors on techniques, attitudes, and commitment to the profession. At any time during training, he can be rejected because of an inability to acquire the skills and understandings of the curriculum.

The in-service training programs at The Greater Pittsburgh Guild for the Blind and at Hines Veterans Administration Hospital have proven successful because students who completed the training developed a thorough knowledge of blindness and became highly skilled in teaching orientation and mobility. Among the advantages of these programs are: (1) training is almost exclusively on a one-to-one basis, which allows more personal contact between student and supervisor; (2) because of the one-to-one ratio,

The Pittsburgh Guild Program

Items in the curriculum

Course work is followed by internship

Reasons for the success of the programs

evaluations can be more thorough and the student can be completely flexible in acquiring his skill; (3) the student receives his entire training within an environment related to the job he will perform; (4) an experienced and knowledgeable staff is readily available for teaching purposes, consultations, observations, and demonstrations; (5) because of the one-to-one ratio, the element of time required to achieve the skills is reduced; and (6) persons already trained in an allied professional field could be encouraged to enter the specialty of orientation and mobility. The practicality and efficiency of mobility in-service training programs become apparent when we consider the fact that Hines Veterans Administration Hospital and The Greater Pittsburgh Guild for the Blind currently have the largest orientation and mobility staffs in the country.

Experience gained from Hines and The Greater Pittsburgh Guild for the Blind has shown that mobility specialist training at an agency can only be accomplished if the staff is sufficiently experienced and knowledgeable in the various areas of blindness. Such a staff must then be required to fully participate in training mobility personnel. In addition, if agencies propose to implement such a training program, it is suggested that experienced graduate mobility specialists be employed as training coordinators. This latter point will be expanded later in the paper.

When one compares the mobility curriculum at the Florida State University to the mobility curricula at the various graduate schools, it becomes apparent that there is very little difference in their scope or content. We, therefore, can assume that there are probably hundreds of universities throughout the country having special education and rehabilitation departments who can provide similar curricula to undergraduates and graduates. It is, therefore, proposed that we direct our attention to universities as a continuous resource for training mobility specialists. It is further proposed that these universities recruit the current graduate mobility specialists to serve on the faculties as program coordinators. This proposal attempts to take advantage of current educational facilities as well as current graduate students.

Since all three types of training programs (Greater Pittsburgh Guild for the Blind, undergraduate, and graduate) are capable of producing similarly qualified personnel, then a duplication of effort exists, and the field is not taking full advantage of available resources. It is, therefore, proposed that we begin a move to make a clearer distinction between graduate, undergraduate, and agency programs. It is suggested that we make this distinction not by reducing the capabilities of persons with undergraduate degrees (which includes the agency-trained specialist) as has been suggested in some discussions, but by re-evaluating and re-structuring the current graduate programs so that graduate degrees become truly high academic achievements.

□ I recommend that as a prerequisite to admission to graduate school, mobility specialists be required to have at least two years experience teaching mobility at the bachelor's degree level. Mobility specialists could then enter a master's degree program whose curriculum contained courses such as psy-

More universities can set up training programs

A Graduate Program in Orientation and Mobility

chological aspects of disability, medical aspects of disability, education of exceptional children, special education administration, statistics and research, curriculum development and revision. Such mobility specialists would then participate in a practicum or internship in a supervisory capacity. Graduates with master's degrees would specialize in the mobility problems of various disabilities and be fully qualified to serve as director or supervisor of an orientation and mobility staff. They could also act as consultants to various agencies and their staffs or become part of university faculties. In addition, a mobility specialist with a degree such as has been described could very easily become involved in research which is so vital to the field of blindness.

The advantages to the above stated proposal are: (1) there would be a distinct delineation between mobility specialists with graduate degrees and undergraduate degrees; (2) mobility specialists with graduate degrees would be more qualified to supervise a mobility staff; (3) there would be more incentive for mobility specialists with undergraduate degrees to achieve graduate degrees, and thus remain in the profession for longer periods of time; (4) the proposed change would be a way to encourage the current graduate mobility specialists to become members of university faculties or agency staffs, thereby providing more opportunities for greater numbers of people to be trained as mobility specialists; and (5) mobility specialists with graduate degrees would be more versatile in providing services.

□ In this age of specialization, we constantly see the emergence of new professions and the never-ending cry that there is a shortage of manpower. In these new professions, as well as in those that are established, the need for manpower has become synonymous with the need for funds, facilities, and faculty to train the people. Perhaps one of the reasons for the continuous need for personnel is the adoption of unrealistic standards by the professions. Perhaps with a vigorous re-evaluation of current standards, we would see that there are thousands of people who are qualified to provide the various services, but they have not had the opportunity to avail themselves of the high academic requirements. I believe that an arbitrary decision to recognize only graduate mobility specialists would be narrow, unrealistic, and impractical. For this reason, I urge the standardization of mobility training programs to be provided by institutions such as undergraduate universities and agencies. I also recommend the certification of mobility specialists trained at these institutions. Further, I urge that distinctions be made more clear-cut between undergraduate and graduate mobility specialist programs as a means of upgrading the profession.

It is admittedly not easy to change that which currently exists. Perhaps it would be easier to follow the direction of tradition and establish standards that make us appear impressive in the eyes of other professions. I believe this does not need to happen. We need not allow tradition to be our only guideline for establishing new directions. With imagination, foresight, and proper utilization of available resources, we can make the specialty of orientation and mobility a truly high-quality profession.

A Graduate Degree Should Not Be a Requirement for Certification

Ocular Prosthetics

Ocular prosthetics is a centuries-old profession and a better understanding of this specialty can be best achieved by a brief recounting of its history.

As early as 500 B.C. ancient Egyptian scribes report their priests making artificial eyes consisting of earthenware painted to resemble human eyes and the surrounding orbital structures. These were attached to flesh-colored cloths by the use of adhesives.

In modern times, Germany became the center for this service. A most unique combination of circumstances was responsible for this: skilled craftsmen, plus a geographical location where natural resources were available for making glass suitable for artificial eyes. These remained unsurpassed in quality until plastic was introduced.

□ One would certainly be remiss not to mention the contribution of the finest of craftsmen, the glass artificial eye maker. With no formal knowledge of anatomy and physiology of the anophthalmic socket, he developed his service to the highest level attainable. His influence in ocular prosthetics is ever present. Unfortunately, there was a scarcity of glass artificial eye makers, particularly in the United States. These men traveled extensively throughout the country but, of course, could not begin to fulfill the needs of all persons requiring their services. The majority of people in need of their service prior to the introduction of plastic had to have a prosthesis fitted that was not custom-made and, as a consequence, it did not completely fulfill the needs of the patient.

In 1934 plastic was introduced and in a space of a few years, completely revolutionized ocular prosthetic service.

The plastic used in ocular prosthetics is the same acrylic resin used in dental prosthetics. It is dispensed as a powder (polymer) and as a liquid (monomer) that when mixed together, reaches a dough-like consistency which is easily formed in stone or steel molds from which the patterns have been removed. Acrylic resin is transparent and can be colored or tinted to almost any shade and degree of translucence.

The glass prosthesis falls into two general classifications, reform and shell. The reform prosthesis has a cavity between the anterior surface holding the iris and the posterior surface fitting the socket wall.

The shell type prosthesis is a single thickness of glass with no cavity.

The plastic prosthesis has no general classification as to shape. It can be made as a reform or as a shell and can combine the best features of both.

This article is reprinted from the September 1968 issue of *The Seer* (a publication of the Pennsylvania Association for the Blind) with the permission of the editors and the author.

FRANCIS J. CONNELLY, Ocularist

Mr. Connelly is a consultant to the Wills Eye Hospital, Philadelphia, and a past president of the American Society of Ocularists.

The Glass Artificial Eye Maker

The introduction of plastic

Classification of glass prosthesis

It can be stated unequivocally that the plastic prosthesis has completely revolutionized ocular prosthetics. Plastic in the field of ocular prosthetics has known no limitations.

It is incumbent upon the ocularist to be thoroughly knowledgeable of the anatomy and physiology of the anophthalmic socket and of the surgical procedure used. Each anophthalmic socket has its own unique structure and when we consider the scores of different shapes of orbital implants, it becomes all the more clear that each and every orbital cavity will be further characterized by the particular shape of the orbital implant.

□ The patient is instructed to fix his eye in a primary position. We now proceed to part the lids for a visual examination of the orbit. The patient then goes through his complete vertical and horizontal excursion. It is at this time that the socket will reveal its true identity. We will be able to observe the *cul de sacs* and the depth of the fornices in their primary and working positions and, at the same time, observe any obstructions that may be present in the form of adhesions or muscle attachments. Of course, *any* variable will have to be accommodated.

Having identified the socket anatomy and the orbital implant, we select an impression fitting shape that most closely conforms to socket detail. Upon insertion of the fitting shape, we observe a response which will be an increase in the palpebral fissure. The fitting shape is removed and wax additions are made to its periphery as indicated by deficiency in the palpebral fissure. We are now engaged in a peripheral fit of the orbital cavity. With this procedure, we seek to obtain these three primary results:

- (1) Complimentary Palpebral Fissure,
- (2) True Pupil Plane,
- (3) Symmetrical Lid Relationship.

When these three steps are satisfied we are now ready to finalize our fitting procedure. This is done by impressioning the orbital cavity. There are specific medical indications for this procedure. The impression fitting shape used for the peripheral fitting is now used to carry the impression material into the orbital cavity. What we receive in return is a duplication of this cavity which is critically involved in the making of the prosthesis. This is known as a modified impression fitting technique which has proven to be superior to all other fitting procedures for the following reasons:

1. Permits maximum orbital volume replacement.
 - a. A necessity when the patient is under eight years of age.
 - b. To correct a deepening of the superior lid sulcus—the single most significant involvement with the anophthalmic socket.
2. Eliminates the posterior surface void area. The posterior surface of the prosthesis has heretofore been arbitrarily arrived at and was always concave. This void area has been characterized by ophthalmologists as a “pooling area for bacteria-laden secretion,” and “a cause for chronic secretion.”
3. Increases lubrication over the anterior surface of the eye. The normal flushing action of the lids moves the tear flow over the front surface of

Examining Socket Anatomy and Orbital Implant

Finalizing the fitting procedure

the eye; the tears are no longer trapped in the "void" area, because we have impressioned the orbit and filled the cavity.

4. Motility of the prosthesis is always improved due to the accuracy of the fitting accomplished by the impression.

□ The conventional plastic prosthesis has always been of a solid mass and as such, presented a weight problem that of itself could preclude maximum orbital volume replacement.

A hollow plastic prosthesis is now being made that permits the technician to replace volume with no fear of doing harm to the cavity which, prior to the hollow plastic prosthesis, was technically impossible.

The patient with the blind eye or phthisical globe is fitted with a cosmetic lens. This is usually accomplished by the use of a local anesthetic administered to the natural eye to be covered. An impression tray is inserted into the palpebral fissure covering the entire globe. A suitable alginate or impression cream is injected through the casting shell by use of a syringe. When the impression cream has jelled it is removed from the globe and a stone cast is made. This cast is a reproduction of the eyeball and a clear lens is made from this cast. This lens is fitted to the patient's eye and the necessary adjustments are made to its posterior surface. In this type of fitting, the patient has an adjustment period in which he builds up tolerance to the lens. When the patient can tolerate his trial lens for approximately eight hours a day, the cosmetic lens is completed with iris coloring and scleral tone. This procedure consistently returns the best complete cosmetics.

There are, of course, many ways to make the iris for the prosthetic eye. It is desirable and advantageous for it to be made of plastic. Most ocularists construct the iris in the following manner: specially prepared disc oil paints mixed with a clear plastic vehicle are stroked onto the iris disc. The iris coloring can be broken down into these specifics: limbus, stroma, highlight, and colorette.

With the patient present, one can capture the tone and the arrangement of the iris coloring and characterize the iris, for instance, freckling.

Coloring of the iris should always be complimentary and is best achieved when painted with the patient present. When the painting of the iris is completed, a clear corneal section is cemented to the iris disc using the same clear plastic vehicle used for painting. When the section dries we have a unit consisting of iris, cornea, and pupil.

□ The completed prosthesis should achieve these three basic objectives:

1. The shape of the prosthesis should "mirror" in as many respects as possible, the form and motility of the patient's remaining eye.

2. The orbital volume replaced by the prosthesis must be shaped in such a manner that the health of the orbital tissues is assured.

3. The prosthesis should strive to create illusions with color of the eye which will help to hide any remaining form defects.

It must be made known to all that the structure of the anophthalmic socket will change in shape and size, the principal reason being absorption of orbital fat. This change will vary from one individual to another. Due to

Development of a Hollow Plastic Prosthesis

Coloring the iris

Objectives of the Completed Prosthesis

absorption of orbital fat, the orbital cavity enlarges necessitating a prosthesis progressively larger in size. (In children, especially those under eight years of age, the orbital volume replacement of the prosthesis has to be maximum in size, so that development of the bony structure of the orbit is encouraged).

For the patient to be assured of the best cosmetic results, as well as assuring the health of the tissues, a regular examination of the orbital cavity and the prosthesis is recommended. The frequency of the examination once again will be dictated by the needs of the individual, but on an average a yearly checkup will usually suffice.

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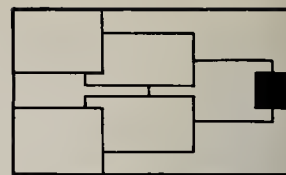
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	Average No. Copies Each Issue During Preceding 12 Months	Single issue Nearest to Filing Date
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B. Paid Circulation		
1. Sales Through Dealers and Carriers, Street Vendors and Counter Sales	none	none
2. Mail Subscriptions	2631	2464
C. Total Paid Circulation	2631	2464
D. Free Distribution (including samples) By Mail, Carrier or Other Means	401	592
E. Total Distribution (Sum of C and D)	3032	3056
F. Office Use, Left-Over, Unaccounted, Spoiled After Printing	326	472
G. Total (Sum of E and F—should equal net press run shown in A)	3358	3528

I certify that the statements made by me above are correct and complete.

(Signed) Patricia S. Smith, Managing Editor



The question of certification of orientation and mobility specialists has exercised the field for several years and will probably continue to do so for many more.

Last summer, we received a copy of a pamphlet *Concerning Certification of Orientation and Mobility Specialists* by James Kimbrough, which we decided to reprint in the *New Outlook*. At the same time, we received a letter from James Carney and three others taking issue with Mr. Kimbrough's position. The article and letter appear on pages 275 and 285 respectively.

In light of the controversy, it might be well to point out the positions of other organizations including the National Accreditation Council for Agencies Serving the Blind and Visually Handicapped, the American Association of Workers for the Blind, and the American Foundation for the Blind.

The National Accreditation Council's position is set forth in *COMSTAC Report*

and calls for graduation from an accredited graduate level program or alternatively "approval by an appropriate body to be established for certification of teachers qualified by experience who meet all but the academic standards." It then urged the establishment of a certifying body.

Such a certifying body has been established by the American Association of Workers for the Blind under the aegis of its Mobility Interest Group. By mid-July 1969 the AAWB Accreditation Committee had certified more than 100 persons who meet the NAC criteria.

The American Foundation for the Blind at this writing does not have an official position, although its Service Advisory Committee has before it a statement calling for the re-examination of the present system of personnel training in order to meet the goal of universal travel independence for blind persons.

There are those in the field who believe

that the professional gains of orientation and mobility specialists would not be jeopardized by the establishment of several levels of training, ranging from the technical through the doctoral, with each specialist then working according to the level of his training under appropriate supervision.

It seems to this writer in a time of growing personnel shortages in all the helping professions that the idea of several levels of training designed to meet the varying needs of those served is the most economical and efficient way of meeting the needs of the most people.

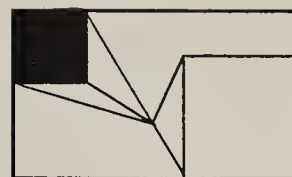
Obviously, though, the level of education and the certification of mobility specialists is an important—and still very much open—question. In this issue, we have several views. The letter column is open to others.

P. S. S.

In December: The Mentally Retarded Blind Child

Next month, the *Outlook* will present a special issue on the blind child who functions on a retarded level. Experts in the field will discuss the subject from several angles—among them, testing, effect on the family, and teaching techniques.

Letter to the Editor



Dear Editor:

Recently, we received a pamphlet entitled "Concerning Certification of Orientation and Mobility Specialists" by James Kimbrough. The pamphlet was listed as the first in a professional series to be printed by The Greater Pittsburgh Guild for the Blind. The pamphlet is quite interested in seeing that the certification standards are lowered to include those without masters level training as specialists. Although Mr. Kimbrough states that he delineates the masters degree level and the lower levels, it is quite clear that the public image would be one of a profession with extremely low standards. To perpetuate the idea of this change in the standards, reference was made to past forms of training.

Hines V. A. Hospital was cited as one of the prime examples of in-service trained staff being quite successful. What Mr. Kimbrough failed to point out was that all of this in-service trained staff, below masters degree level, was trained prior to the inception of formal curriculums of training of O. & M. specialists. Also he failed to note that all members of the Hines staff would qualify under the masters degree level of training or the grandfathers clause which was designed to include those persons who created and fostered the field in its infancy, which includes every member of the Hines O. & M. staff.

We feel that these facts about Hines should be brought to light, since Hines is not a center comprised of unqualified staff members. Of the sixteen men on the O. & M. staff at Hines, almost one-third of them have attended masters degree programs at Western Michigan University or Boston College (five to be exact). It is also

a fact that in the near future, only persons holding a masters degree or the seniority required to fall under the grandfathers clause, will be hired into the V. A. System. Together these points make Hines a mighty poor example of a center which is not employing qualified staff or one which is not openly seeking to raise its standards rather than keep them static or lowered.

Secondly, the suggestion for two years of experience in the O. & M. field prior to admission to a graduate program is unrealistic. No other program or field of study, to our knowledge, has such a requirement for admission at the masters degree level. Even if there were such a requirement, the only benefit the type of program proposed by Mr. Kimbrough could have would be to train agency or center administrators, which is not the goal of a masters degree in orientation and mobility at this time. If a person aspires to an administrative position, he should prepare for it on his own not in conjunction with a course of study which is already packed into too short a period of time. We need to use our masters degree time to turn out specialists who are better able to cope with other impairments encountered in addition to blindness; to improve and increase the quality of research being done on techniques and equipment being used in training and by the average person who is blind; and to better expose the professionally trained person to those areas of blindness which have barely been touched, such as work with the geriatric blind.

The one positive point of this pamphlet's program is that it might limit

those applying for masters level training to those persons who wish to remain in the field. This has been a problem and will remain one until further restrictions are placed on the period of service required after graduation and other standards are raised so as to select only those persons with a desire to help in the development of the field. It is true that we need more people whether full or part time; but we can see this increase in numbers happening only if the O. & M. specialist is a highly qualified and sought after person, which would make the field highly desirable to those persons seeking a rewarding profession. We must begin to expose people in many areas of undergraduate study to the challenge and future in orientation and mobility. This can be done by hiring junior and senior undergraduate students as night attendants that live in centers, as is the practice at the Eastern and Western V. A. Rehabilitation Centers; by better development of the lines of communication between undergraduate programs in special education and the graduate programs; and last, but by far the most important, maintain the highest possible standards in the field itself.

We feel that it is essential that our thoughts on these subjects be known. As members of the A. A. W. B. we feel that other members of our profession should have access to the information herein, which may help clarify some of the confusion which presently exists.

James Carney
Wilfred Kingsley
James Liska
Paul Scheel



■ The Department of Health, Education, and Welfare and the Department of Housing and Urban Development have initiated a joint campaign to provide older people with increased services in the Model Cities Program and to encourage them to take a greater role in planning and developing these services.

Under an agreement reached between the two departments, the Model Cities Program will be encouraged to place elderly persons on each model city board or planning body.

The agreement grew out of a realization that elderly persons make up a larger percentage of the populations of model cities communities than of the population at large.

The campaign will be administered by HEW's Administration on Aging and HUD's Model Cities Administration.

■ Julius Zittler has been appointed executive director of the Home and Association of Jewish Blind, Chicago.

■ A Symposium on the Control of Eye Movements will be held November 10-11, 1969, at the Jack Tarr Hotel, San Francisco. It is being sponsored by the Smith-Kettlewell Institute of Visual Sciences of the Pacific Medical Center, and the Department of Visual Sciences of the University of the Pacific Graduate School of Medical Sciences.

The program will give a major review of the work to date on physiological aspects of eye movement control systems in relation to eye movements, with particular emphasis on ongoing studies.

The symposium will be part of the dedication ceremonies of the new Smith-Kettlewell Institute of Visual Sciences building.

■ George L. Raverat, for 38 years until his retirement in 1954 head of European operations for the American Foundation for Overseas Blind, died September 30 in Lache, France. He was 81 years old.

Mr. Raverat began his career in work for the blind when the Permanent Blind War Relief Fund was established to assist blinded veterans of World War I. The name of the organization was later changed to the American Braille Press and then to the American Foundation for Overseas Blind.

During the German occupation of France in World War II, when the Nazis requisitioned all metal, Mr. Raverat hid the zinc plates of his organization's entire braille production, along with 350 kilos of unused zinc plates. These plates were the basis for restocking French braille libraries, which had been badly damaged during the war.

Mr. Raverat was a member of the French Legion of Honor and in 1968 won the Helen Keller International Award for Outstanding Service to Blind Persons.

■ "To Live Again," a series of ten half-hour programs about the problems handicapped persons face and the ways they find to surmount their handicaps are being distributed to television stations throughout the country.

The series, produced by NBC-TV in cooperation with the U.S. Department of Health, Education, and Welfare, stars Nanette Fabray, William Gargan, and Junius Kellogg, formerly of the Harlem Globetrotters.

One of the programs, "The Black Curtain," focuses on the lives, rehabilitation, and achievements of three blind persons.

■ Dr. Saul Freedman, formerly coordinator of rehabilitation services for the Lighthouse, the New York Association for the Blind, is now assistant clinical professor in the department of rehabilitation at Albert Einstein College of Medicine and assistant professor in the graduate school of education, City University of New York.

■ In May 1969, a bronze plaque with a braille inscription was installed in Chicago's Civic Center about 100 feet from the 50-foot-high sculpture donated by Pablo Picasso to the people of Chicago in 1967. Also resting on the pedestal is a small model of the Picasso work.

The model allows blind visitors to the Civic Center to "see" the sculpture by touch. The braille inscription gives them a brief account of how Chicago architectural officials approached Picasso and persuaded him to execute a monumental sculpture, which he had never undertaken before. The plaque also contains a relief map and a brief description of the Center itself.

■ The designation of June 1969 as "Helen Keller Month" provided some unexpected pleasures for several clients of the Rhode Island Association for the Blind, Providence.

In response to television and radio spots prepared by the American Foundation for the Blind exhorting viewers and listeners to "get to know their local agencies for the blind," radio station WPRO in Providence invited blind persons into their studios.

Each Monday morning during June, the station held conducted tours for groups of blind persons. The visitors were shown all of the equipment, and met the disk jockeys, announcers, and newscasters they had previously only heard.

■ The National Program for Voluntary Action, announced by President Nixon last spring, is now in operation under the direction of Max M. Fisher, a Detroit businessman who has been named special consultant to the President on voluntary action.

The core of the new program is a Clearinghouse of information on voluntary programs, and on government programs designed to foster voluntary action. The Clearinghouse will solicit information on all kinds of voluntary efforts and, in turn, make it available to any group looking for new projects or ideas.

For more information, write to the National Program for Voluntary Action, 451 Seventh Street, S.W., Washington, D.C. 20410.

■ The Blinded Veterans Association has moved its national headquarters from 2430 Pennsylvania Avenue, N.W. to 2121 P Street, N.W., Washington, D.C. 20037. The telephone number has also been changed to (202) 293-2658.

■ The Junior League of Dayton, Inc., in cooperation with Goodwill Industries Rehabilitation Center, has just issued a 60-page guide to Dayton for handicapped persons. Called *A Guide to Dayton for the Handicapped*, it is designed to help handicapped persons by alerting them to the public facilities they are most likely to visit.

For more information, write Anne Creel Matson, Director of Community Relations, Goodwill Industries of Dayton, Inc., 201 West Fifth Street, Dayton, Ohio 45402.

■ Ernest O. Skagen, for the past three years professor of sociology at New Mexico State University, has joined the Community Services Division of the American Foundation for the Blind as regional consultant for the Northeastern states.

He will provide field services to institutions and agencies concerned with visually impaired persons in New England, New York, and New Jersey.

■ Robert Hammarstrom has been appointed executive director of the Winnebago, Illinois, Blind Center. He had worked previously as a director of youth groups for the Lutheran Church, and for the Boy Scouts.

■ Mrs. Evalyn K. Shapiro has been appointed selection assistant in the Division for the Blind and Physically Handicapped, Library of Congress. She replaces Edith H. Leeds, who has retired.

Mrs. Shapiro, a former managing editor of *Poetry Magazine*, will recommend adult titles for talking books, braille, and magnetic tape recording.

■ Four schools—the Arkansas School for the Blind, the Maryland School for the Blind, the Ohio State School for the Blind, and the Oregon State School for the Blind—have been accredited by the National Accreditation Council.

A state agency—the Virginia Commission for the Visually Handicapped—has also been accredited. These are the first schools, and the first state agency, to receive accreditation.

■ The Overbrook School for the Blind has initiated a program for the education of the deaf-blind. It will be headed by Mrs. Elizabeth Sigafos.

■ Three Illinois agencies—the University of Illinois Cooperative Extension Service, the Illinois Division of Vocational Rehabilitation, and Community Services for the Visually Handicapped are sponsoring a homemaking program in which experienced tutors teach homemaking skills such as cooking and sewing to rehabilitation clients.

Clients for the program are chosen on the basis of evaluation by the rehabilitation counselor. The tutors, selected on the basis of their experience and knowledge in homemaking, are given an orientation to blindness before they begin to teach in the program.

■ Richard J. Brown, M.D., formerly chief psychiatrist at the guidance center in New Rochelle, has been named director of the social and adjustment service, Institute for the Crippled and Disabled, New York City. In his new position, Dr. Brown is coordinating social adjustment services with the Institute's vocational rehabilitation and medical programs.

■ The American Printing House for the Blind has announced that, as a continuation of the publication of the braille edition of the World Book Encyclopedia, Field Enterprises Educational Corporation, publishers of the encyclopedia, is paying for the platemaking of the 1969 World Book Yearbook. As a result, the 1969 Yearbook will be available at cost of printing and binding. The cost of the six-volume Yearbook (Catalog No. 6-5854) is \$27.30.

■ Approval of the first license in the United States to produce a live attenuated German measles (rubella) virus vaccine has been announced by U.S. Secretary of Health, Education, and Welfare Robert H. Finch.

The license has been awarded to Merck Sharp & Dohme, West Point, Pa.

Other vaccines currently under consideration are expected to be licensed as soon as testing and evaluation programs are completed.

■ Mrs. Doris Wick is in the process of organizing a pen pal club for blind persons. For more information, write Mrs. Wick at 44 Palm and Pine Trailer Park, Nokomis, Florida 33555.

Coming Events

Nov. 10-11 Symposium on the Control of Eye Movements, San Francisco.

Nov. 20-22 National Society for the Prevention of Blindness, Annual Meeting, New York, N.Y.

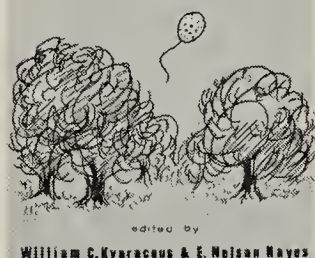
Dec. 5-6 National Assembly for Social Policy and Development, New York, N.Y.

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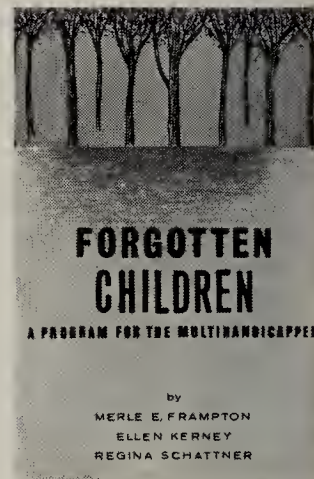
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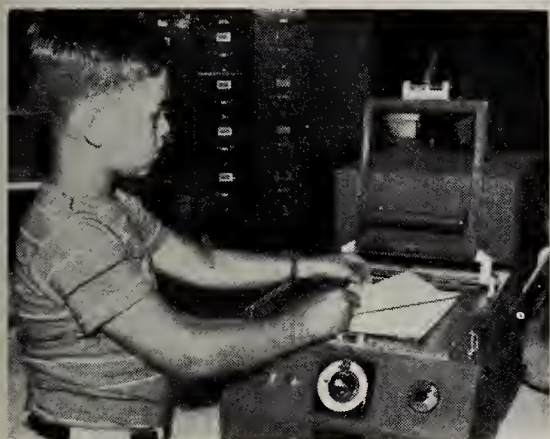
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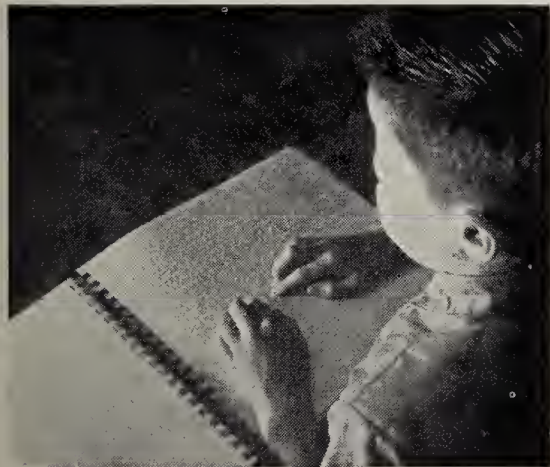


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THE NEW Outlook FOR THE BLIND

THE BLIND CHILD WHO FUNCTIONS
ON A RETARDED LEVEL

December 1969

Volume 63

Number 10



THE NEW Outlook FOR THE BLIND

December 1969 Volume 63 Number 10

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Introduction

□ For several years it has been known that the number of children who are blind and have additional handicaps, especially mental retardation, has been increasing. The difficulty of diagnosis, the lack of knowledge regarding the appropriate ways of serving the individual, and a lack of staff and administrators to deal with it, has meant confinement to an institution in many cases where there was potential for a productive life.

In an effort to increase the knowledge about the mentally retarded blind child and to provide an opportunity for discussion of common problems, the American Foundation for the Blind has during the past year and a half co-sponsored two institutes on "The Blind Child Who Functions on a Retarded Level." The Proceedings of the first, which was held in Austin, Texas, in April 1968, were published by AFB last March. While complete records, such as proceedings, of such meetings can be invaluable, the limited distribution they receive can also mean that the very people who are most in need of the information and stimulation they provide never see them.

A second institute on "The Blind Child Who Functions on a Retarded Level" was held in Atlanta in May of this year. This institute was co-sponsored by the Georgia Department of Education. Through a felicitous coincidence, the editors of the *New Outlook* were at the same time having discussions about planning an issue of the journal that would be devoted entirely to this very subject. Planning such an issue involves more than collecting the necessary number of articles on the subject. Balance—that elusive quality that makes the difference between a good and a bad periodical—is particularly important when an issue is confined to a single subject—and much more difficult to attain. Thus one can imagine the pleasure felt when it was discovered that the papers from the Atlanta meeting filled, in every respect, the requirements!

Of course, the excellence of the material created its own problems. Not all of the papers could be published in this issue because of space limitations. Again, balance was the criteria. So, in succeeding issues we will publish several others and, eventually, we will reprint all of the papers from the meeting that appear in the *Outlook* in pamphlet form.

The Editors

The Child With Rubella Syndrome

Since 1964, through participation in the Rubella Birth Defect Evaluation Project of New York University Medical Center, 500 children, their parents, colleagues in the medical profession, and colleagues in a number of what I now know to be allied professions, social service, special education, and public health, have contributed greatly to my education. I would like now to dispel a few myths concerning rubella and share what I consider are our areas of major ignorance concerning the rubella-damaged child. We are at a point in time when we know enough so that these children should in no way frighten us. Our inadequacies in helping them, however, should annoy and frustrate us.

We can no longer ignore these children. There are too many of them—an estimated 1 percent of children born following the rubella epidemic of 1964 were affected by congenital rubella and the extent of disease in these 30,000 children has been too severe.

Handicapped children don't live in a vacuum. They live in a total community or *should* live in a total community. We will provide proper care and service only when we are able to integrate these children into whatever aspects of the community they are capable of functioning in. This can be done only when their problems are well known to all segments of the community. As physicians we have a responsibility for parent education and for providing information on health that can be disseminated to the entire community. There is room for improvement in both these areas.

Although rubella is one of the mildest illnesses caused by a virus, it is the only virus that regularly causes birth defects. This teratogenic potential was first recognized by an Australian ophthalmologist, Dr. Norman Gregg. In 1941 he noted an epidemic of congenital cataracts in his practice, and by insightful history-taking was able to relate these events to maternal rubella in early pregnancy. Major strides in our knowledge concerning rubella have followed the isolation of rubella virus and development of specific laboratory tests for rubella antibody. These laboratory breakthroughs occurred in 1962 in two laboratories, one at Harvard and the other at Walter Reed Army Medical Center. Because of these tests, we have been able to learn much about how rubella behaves and of greatest importance, what can be done to minimize or prevent future epidemics of rubella.

□ Clinical rubella (the typical illness) begins approximately two weeks after exposure to someone who has the disease. Unfortunately, the person begins to shed virus in his nasal secretions as much as one week before he has any sign of illness. He may continue to shed virus for as long as two or more weeks. This is important because the person is frequently quite contagious

LOUIS COOPER, M.D.

Dr. Cooper is professor of pediatrics, New York University Medical Center, New York City.

Rubella only virus that regularly causes birth defects

Clinical Rubella Pattern

well before he is aware that he is sick and he remains contagious for a prolonged period. Obviously, quarantine measures can not prevent spread of rubella because it is already too late by the time one knows whom to quarantine. Of importance to the pregnant woman and the developing fetus is the fact that the virus is present in the bloodstream for as long as a week before the onset of rash.

Laboratory tests are important because no doctor can make an unequivocal diagnosis of rubella based on appearance. Other viruses, which do not cause birth defects, can cause an illness which looks just like rubella. Even more difficult is the problem of "subclinical rubella"—i.e., rubella without any rash or other sign or symptom. This can only be detected by laboratory tests. Fortunately, in adults, rubella with rash appears to be more common than the "subclinical" variety.

□ The most generally useful laboratory test is called a rubella hemagglutination inhibition (HI) antibody test. If one has never had rubella, then his blood serum does not contain this HI antibody. However, at the time the rash develops (or does not develop in the subclinical case) the HI antibody appears and persists for life. One bout of rubella infection appears to protect against subsequent reinfection. Of greater importance is the fact that a pregnant woman who has detectable rubella HI antibody in her blood at the time of exposure to rubella does not have to worry that her developing fetus may become infected.

Unfortunately we have learned that a history of past "rubella" is totally unreliable. If we took antibody measurements from a group who thought they had rubella or whose mothers said they had rubella when they were children and a group of mothers who said they did not have rubella, we would find about the same incidence of antibody. This is caused by the factors mentioned previously, misdiagnosis and subclinical rubella.

I believe you now can see how important it is that rubella antibody testing become widely available. In fact, one of our current goals is to see that this kind of antibody test be performed at the time a woman goes to get a marriage license or for her first prenatal visit if she has not had a previous test. She now is required to have a blood test for syphilis, not a common disease in most communities, and has her blood type and Rh factor measured when she is pregnant. There is no reason the same blood specimen cannot be tested for rubella antibody as well. If she is susceptible to rubella *and not pregnant*, she will be candidate for the soon-to-be licensed rubella virus vaccines. If she is immune to rubella (and 80 percent of women of child bearing age are), then she can be reassured that she is not at risk. If she is already pregnant, and found to be rubella susceptible, she should be watched carefully, and then can be vaccinated immediately after delivery. Of course, the major thrust for rubella vaccine programs in this country will be directed at young children (ages five to eight) who are responsible for epidemic spread of rubella. Elimination of epidemics will decrease the risk that pregnant women might be exposed.

It is important that you know about these rubella antibody tests, because

Rubella cannot be diagnosed on appearance

Rubella Antibody Testing

Testing should be more common

Public should demand tests

it is only through public demand that the tests will become widely available. You should also know that although current tests are inexpensive and can be done in one day, there are still a few technical problems to be ironed out before they become available to every citizen. It can be done though and it will be, if the public insists!

The pattern of virus excretion and antibody response in congenital rubella is much different from the pattern of excretion and the antibody responses in post-natal rubella. It is important that you know something about this, too, since it is necessary for diagnosis and management. If you can make an early diagnosis then you can plan and begin appropriate services so much earlier. Rubella virus infection begins in the fetus during the first trimester or occasionally in the second trimester. The fetus remains infected throughout pregnancy and frequently for months after birth. The fetus can make antibodies of its own and if you measure antibodies in the blood of the newborn baby he has a good deal of rubella antibody. Much of the antibody was derived from his mother through the placenta, but some of it is of his own making. If one can detect the presence of rubella antibody in a newborn infant that one can prove is of his own making (this antibody is rubella IgM which does not get through the placenta), then one is alerted immediately. Such a child must be followed carefully because the risk of rubella-associated defects is quite high.

The fetus, once infected in the uterus, usually remains infected throughout pregnancy. In our experience, approximately 85 percent of newborn infants with congenital rubella are still shedding rubella virus in pharyngeal secretions. By age six months, less than 50 percent remain infected; and by age one year, the figure is less than 10 percent. We are unaware of any child still infected after age two years. As long as the child is infected, he is contagious to those who have close contact with him. This is a special problem for hospital personnel, but is of little concern for the special educator who usually does not become involved until the child is at least a year old.

Rubella and congenital rubella occur every year, but the effects of rubella are of greatest concern during severe epidemics, which occur unpredictably, but at approximately seven to ten year intervals. Our current crisis began with the major epidemic of 1964 which, you will recall, affected an estimated 30,000 infants. This epidemic was the first to occur after virus laboratory tests became available for definitive study of rubella and much has been learned from intensive studies of the "rubella babies of 1964" which have been completed in many medical centers.

□ Many women who had rubella in early pregnancy elected to have their pregnancies terminated by therapeutic abortion. Study of tissues from these abortions (by Dr. Marine and others) revealed that after virus is present in the mother's blood stream, the placenta becomes infected. From the placenta, virus travels through the umbilical cord to virtually every organ of the developing fetus. Since the infection becomes such a disseminated one, it is easy to understand how rubella can cause birth defects in many parts of the body. The virus does appear to have a predilection for certain target organs,

Congenital rubella infection long lasting

How Infection Spreads

however, and the eyes, brain, ears, and heart are especially susceptible to rubella infection and damage.

The newborn baby with congenital rubella may appear to be perfectly normal or he may have numerous defects occurring singly or in any combination. Low birth weight (less than five and one half pounds) or birth weight one to two pounds less than siblings is the rule. This is due to intra-uterine growth retardation. Rubella virus slows down the rate of cell multiplication and therefore certain target organs have fewer cells than normal. Frequently, the rubella child, especially the more severely damaged one, will continue to grow more slowly than his normal siblings.

Other transient neonatal manifestations include thrombocytopenic purpura (bleeding into the skin because of a deficiency in blood platelets), hepatitis, anemia, and x-ray evidence of disturbed bone growth. These effects clear in infants who survive.

□ Other defects which are permanent include cataracts, glaucoma, heart disease, hearing defects, and brain injury. The cataracts may not be present or detectable at birth. It is not uncommon for a mother to be the first to recognize the presence of these lesions. Approximately half of rubella cataracts are bilateral. What are the implications of these cataracts? Obviously, if one leaves dense nuclear cataracts in place, a child is blind and has no useful vision. Furthermore, it has been learned that the rubella virus can lurk in these cataracts for years after birth, even long after the virus cannot be found anywhere else. (This is the exception to the two year rule mentioned earlier.) There are some ophthalmologists who believe the presence of the virus in these cataracts accounts for poor results from surgery and who believe that one should delay surgery for the rubella-damaged child until he is three or four years old, until perhaps the virus is gone. I disagree. It is unfortunately all too frequently true that the child with bilateral cataracts is also deaf. If you leave the cataracts in place you have a deaf-blind child, a much more difficult problem than a deaf-low vision child.

It would be nice if one could operate on the eyes of a child with bilateral cataracts the day after they are discovered. Unfortunately, this is technically extremely difficult and all too frequently results in loss of the eye. In our experience, the compromise that seems to give the best results is to wait until the eyes get large enough for a surgeon to have a reasonable chance of a good surgical result. In practical terms, this means we are not operating on any cataracts until children are six months of age or older and most of our children end up having cataract surgery at about one year of age. I must point out that I am not an ophthalmologist and that this is an area of honest controversy among people who have every right to be considered authorities in the field.

What kind of vision can one expect from an operated rubella eye? These eyes are quite frequently microphthalmic (quite small) and not very good to begin with. Even if one could just dissolve the cataract without any further trauma many of these children would have visual problems. With good surgery and proper fitting of glasses, a rubella child can have a good deal of

Neonatal manifestations of rubella

Rubella Cataracts

Cataract operations

Vision expected of operated rubella eye

useful vision, useful for ambulation and certainly enough for him to function in many low vision classes.

Unfortunately, there are many children with rubella cataracts who are now blind and who will be blind for the rest of their lives. They are blind because of poor surgical results. Sometimes the poor surgery relates to the inexperience of the operator, but even the most skilled ophthalmologist operating at the best possible time, will occasionally have a very poor result with these eyes. By the same token, much can be done to decrease the risk of poor surgical results. We think it is extremely important that children with rubella cataracts be sent to eye surgeons who have broad experience with this disease. Experience with other forms of cataract is not a substitute for experience with the rubella cataract.

□ Congenital glaucoma, indistinguishable from the hereditary variety, is an uncommon, but not rare feature of rubella syndrome. We have observed 12 children with glaucoma and 108 with cataracts, a ratio of approximately 1:10. In contrast to the rubella cataract where temporizing is appropriate, one must move quickly when congenital glaucoma is suspected. The diagnosis is usually an easy one—a big, bulging, cloudy cornea is hard to miss and increased intraocular pressure can be confirmed by tonometry under anesthesia. An infant with suspected congenital glaucoma should be referred without delay to an ophthalmologist with broad experience with this disease. He will be able to distinguish this condition, which requires prompt surgery, from the transient corneal clouding occasionally seen in rubella syndrome. This latter condition requires no treatment.

Unfortunately, the prognosis has not been good for our children with congenital glaucoma. Only one of the 12 has good vision in an involved eye. Delays and poor operative results have contributed to this problem. There is no adequate medication for this condition, and I would not hesitate, therefore, to send an infant hundreds of miles to insure that he would be in experienced hands.

□ The most common ocular lesion in congenital rubella is a pigment abnormality in the retina which is usually referred to as "rubella retinopathy." This condition is easily detected by examination of the retina with an ophthalmoscope, which as you know, is light with lens and mirrors which allows the doctor to look through the pupillary opening, directly onto the retina. The rubella virus causes clumping of the retinal pigments so that certain areas appear to be "peppered" with dark granules and other areas are lighter than usual. Some physicians have used the term "salt and pepper" to describe these changes. In most instances, this clumping does not interfere with vision. It is an extremely useful diagnostic tool, however. If one sees a child deaf or retarded for no apparent reason, and on physical examination one can detect the presence of these changes, this gives a clue that the child may have congenital rubella. Rubella laboratory tests would be required to confirm the diagnosis. If rubella is confirmed as the cause of the child's problem, not only will this help in organizing care, but it also can be reassuring to the parents. They can be told that no hereditary condition

Congenital Glaucoma

Ocular Lesions

caused their child's disease, and that rubella will not interfere with any later pregnancies.

□ The most subtle ocular defect in rubella is a most important one to detect. This defect is severe myopia. We have seen dramatic improvement in a deaf child with unilateral cataract when she was given glasses to correct the severe myopia in her other eye.

The question of whether or not to operate on the unilateral rubella cataract is a controversial one. It is our current opinion that surgery adds little or no useful vision if the child has another intact, non-cataractous eye.

□ Rubella heart disease almost always includes a condition called patent ductus arteriosus. The course of this heart disease is quite variable. Many of our children have had no symptoms from their heart disease and we have been able to defer corrective surgery until the third or fourth year of life, when it could be accomplished with relative ease and safety. Other children develop signs and symptoms of severe congestive heart failure during early infancy. Emergency surgery is frequently life saving, but congenital heart disease is the greatest contributor to the high mortality during the first six months of life. Almost all of the 60 deaths in our group occurred before age one year.

□ Hearing deficits are the most common defects in congenital rubella. Among 376 children followed since 1964, 252 of them have significant hearing loss. Rubella deafness may be unilateral or bilateral, and has no characteristic audiometric configuration. The 252 children all have bilateral disease of sufficient magnitude to interfere with development of speech. Many of the children have visual and/or neurologic problems as well.

In many ways the most difficult rubella deficits are those produced by the virus invasion of the developing brain. Many of our infants have had fullblown rubella encephalitis, and virus can be found in brain tissue at autopsy or in spinal fluid obtained during infancy. Since any area of the brain may be infected, the end result may be any degree or combination of intellectual and motor deficits. Some children have spastic diplegia such as is seen in typical cerebral palsy. Others have minimal or severe mental retardation. Thirty of our children now are cared for in public facilities for the mentally retarded. Thirty more are on waiting lists for similar facilities. Roughly three-quarters of our children clearly need some kind of special education. More than half would qualify as being multi-handicapped.

What is the risk of congenital anomaly when rubella occurs during pregnancy? This was an extremely confusing area of controversy before the availability of definitive laboratory tests for rubella. Precise figures are still not available but it is now clear that when rubella occurs during the first two months of pregnancy there is a very high risk of some kind of abnormality. During the third month the risk decreases, and falls off even more sharply during the fourth month. In our experience, rubella after the 18th week does not result in congenital defects. Dr. Sever and his colleagues have suggested that there may be some risk after this period, but others have not yet confirmed this. From all the studies that have been accomplished in the

Severe Myopia

Rubella Heart Disease

Hearing Deficits Most Common Defects

Rubella's effect on the brain

last four years, and I think you can only rely on studies that have been done since the availability of viral diagnostic tools, I suspect that the risk exceeds 50 percent for rubella during the first eight weeks of pregnancy.

□ It is important to realize that there are different kinds of defects depending on when rubella occurs. Cataracts, glaucoma, and heart disease are consequences of rubella during the first two months. Deafness and any kind of brain injury can follow rubella not only during the first eight weeks but any time during the rest of the first trimester and into the second trimester as well. This relates to the timing of development of organs. The heart and the eyes are well formed by the end of eight weeks, but the central nervous system and the ear continue to develop throughout pregnancy. Since the virus infection persists throughout pregnancy and in early infancy, it should not be surprising that one can find damage to these organs when the rubella infection occurs fairly late.

Carol Ann and Jo Ann are twins whose mother had rubella in early pregnancy. Jo Ann is normal and laboratory tests showed that she had not been infected by rubella virus. Her twin is smaller, has heart disease, deafness, retinopathy, and laboratory evidence of rubella infection. If the outcome of a single pregnancy can be so variable, one can see that it is not possible to predict the outcome of any individual pregnancy complicated by rubella during the first months. To potential parents a risk figure of 30 percent or 50 percent really makes little difference. Since rubella can affect only one pregnancy, it is easy to appreciate why many prospective parents request termination of such pregnancies by therapeutic abortion.

Certain children with congenital rubella are so badly damaged that all that can be offered is basic custodial care. With the current state of science it is not possible to alter this prognosis. However, it is possible to diminish the impact of such a child's birth and his impairments on his family and this should not be overlooked.

Other children now have been institutionalized who might have been capable of remaining in the community and with their families if adequate services had been available. I find this most distressing. The children who fall into this category are almost exclusively the multihandicapped.

□ In 1966 a group of people, special educators, social workers, and medical people began to meet regularly to see what could be done to improve the situation. The sharing of ideas and feelings was most valuable, because of the diversity present in the small group, which averaged about 12 people. Out of this group grew a number of small programs attempting to serve the needs of the multihandicapped. Our Rubella Project has been working closely with all of the new programs in metropolitan New York which have been stimulated by the impact of the 1964 epidemic. However, we have been most directly involved in a joint venture with the Office of Special Education of the New York City Board of Education. In 1967 Mrs. Rose Lindner, assistant principal and Dr. John Harrington, principal of the School for Language and Hearing Impaired and Mrs. Frances Savage, director of the Bureau for Visually Handicapped, said that they would be willing to provide

Defects Differ Depending on When Rubella Occurs During Pregnancy

Severely affected rubella children

Program at N.Y.U. Medical Center

a teacher of the deaf and a teacher of the blind if we could supply appropriate space, medical personnel, and a few odds and ends. We would attempt to provide services for children who could not be managed by any single discipline alone. We found a ward recently renovated by Dr. Howard Rusk temporarily empty in Bellevue Hospital. Three hardy teachers, a teacher of the deaf, of the blind, and brain injured came to work there. During the past two years, it has become quite clear that a multidisciplinary team can provide services to children who could not be cared for by any single member of that team alone.

The role of paraprofessionals in any school for the handicapped is critical and we are fortunate to have health aides donated by another New York City bureau, the Bureau for Handicapped Children of the Department of Health. An occupational therapist has been supplied by the Children's Recreation Service of Bellevue Hospital, and a music therapist by the Musicians' Emergency Fund. The medical and social service support comes from our Rubella Project. The staffing ratio allows much 1:1 attention of the kind necessary with severely handicapped young children. Many of the children now benefit also from the group experience. Four of the original 20 children progressed enough that they became acceptable for educational programs.

Our facility is far from fancy. The furniture was hospital discards. Teaching equipment and large toys came from many sources. The fact that the ward has a terrace was an added benefit because it facilitated outside play.

Parent counseling is a critical aspect of any early intervention program. Unfortunately, I do not know a single individual who has all the skills necessary to provide proper counseling to all of the parents in a single classroom for multihandicapped rubella children. There are just too many skills required. Perhaps the same kind of approach used to create multidisciplinary medical teams could be used to provide adequate family counseling. That is, take a good psychologist, one who has an interest and knowledge of handicapped children, a social worker with similar experience, special educators from various disciplines, and physicians, and use them as a team to provide backup for the person that relates to the individual mother. Giving the family counselor such resources may allow a social worker or teacher to guide the family of a multihandicapped child whom she would be otherwise unable to manage.

The most important lesson we have learned from the school experience is that educators from various disciplines, doctors, social workers, and psychologists do have a good deal in common; can work in the same room together and, in fact, *must* work in the same room together if they want to provide care for the multihandicapped child.

Because of exciting medical progress, we may be able to prevent future large epidemics of rubella, and to eliminate one significant cause of multihandicapped children. However, it is reasonable to anticipate that medical progress may provide more, rather than less complicated needs for special education in the coming years. With new techniques for intrauterine treatment, higher survival rates for small prematurely born infants and for severe-

Staffing

Facilities

Parent counseling

Need for experts from various disciplines

ly handicapped infants, and the unpredictable effects of new "thalidomides," we must prepare to meet the needs of more handicapped children.

□ The rubella experience has demonstrated that we must create organized programs for early identification of problem infants so that intervention can begin when it will do the most good for the child and his family. This will require a level of coordination between health, education, and social service facilities which does not exist at present. Because technology and our citizens have become increasingly sophisticated, progress may be rapid in the coming years. Visible evidence of this progress can be seen in the passage of the Deaf-Blind Centers Act and the Handicapped Childrens Early Education Assistance Act, both spearheaded by the Bureau of Education for the Handicapped of the U.S. Office of Education; and the establishment of a Congenital Rubella Registry now being encouraged by the National Communicable Disease Center.

If progress is to continue, we must continue to strive for better programs in our own communities and must emphasize to those who have state and national responsibilities that we want their help. Together, we can develop programs for congenitally impaired children which can minimize their handicaps, minimize the disruptive effects on their families, and bring pride to the entire community.

Need for Early Identification of Problem Infants

The Effect Upon a Family of a Child With a Handicap

Almost everyone agrees that the family with a handicapped child is a family with special problems. Most of the available studies about the psycho-social dynamics of families with handicapped children have been the result of the great emphasis placed on mental retardation, beginning in the early 1950's and continuing to the present. One issue occasionally encountered is whether the dynamics of parents of handicapped children are very similar or alike, or whether there are dynamics specific to a particular handicap. Coughlin³ implies that parental attitudes toward handicapped children are basically the same as those toward all children, except that the disability elicits feelings that otherwise would be less prominent or suppressed. Cohen² also sees little differentiation between handicaps. It is also significant that the Wishik¹⁶ study reveals that on an average, a child, if handicapped, will have 2.2 handicaps. Two-thirds of the children in this study were multi-handicapped. We must recognize that there are a large number of these children.

□ The areas studied by various professionals have included: effect on siblings, parental reaction, acceptance, education for family and community, effect of placement, role of counseling and various types of counseling, severity of handicaps, physical versus mental handicaps, and others. As I review some of the studies, it seems to me the *one* significant lesson we learn is that *families*, like individuals, differ greatly. What destroys one home may well serve to strengthen, in some measure, another. Terms such as chronic sorrow, living in a shadow, enduring day by day with anxiety, etc. are terms perhaps true but over-used. During this decade, I believe we have begun to have a more healthy, outgoing approach, that is, one in which professionals and others are discussing freely the *positive aspects* of the child's potential, emphasizing the need for handicapped children to *learn independence* to whatever measure they can, and encouraging the development of *action programs* to provide more services in home communities. Levy,⁷ taking a more environmental view, thinks that many of the emotional problems encountered within families may be caused by a lack of services with subsequent feelings of hopelessness. For the family, the expansion of services has brought some degree of hope and assurance that realistic planning for the future is possible. This feeling of hope may even replace the chronic sorrow mentioned in the literature.

Three aspects of family involvement are of special interest to me, mainly because of my experience and closeness to them.

1. Family interaction and reaction when the handicapped child is identified early and some service is made available as compared to reaction when no service is available.

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Many Areas Have Been Studied

2. Periods of stress for the family.

3. Role of parental counseling.

□ For well over a decade, professionals have stressed diagnosis and treatment for the child who has a physical handicap, i.e., vision or hearing loss. The cardinal rule that the earlier such handicaps are identified and treatment started, the *better* the prognosis is accepted. In recent years another facet has been added to this rule; early identification is needed because of the benefit to the family. Fear of the unknown is almost always worse than knowing the facts. Parents who realize that the child has difficulty but are unable to obtain a diagnosis for several years, have many confused, hostile feelings. Often these feelings are much more difficult to *work through* once the facts are made known. Recently, a nine-year-old girl in a center for the mentally retarded was discovered to be deaf. This is a real tragedy. Precious years had been lost which could have been used for appropriate treatment and management. Feelings of hostility, grief (regret), frustration, uncertainty of future, remorse, can not help but make for difficult family adjustment.

Only rarely can delayed diagnosis of handicap be of any benefit to the family. Olshansky¹⁰ and Hastings⁵ suggest that in some rare instances the retarded child's welfare may be better served if the parents do not know early about the retardation. Thus, the child may be able to create a place for himself in the family which otherwise would have been impossible.

It is important to mention here the thinking of many educators in the area of early childhood education. Today efforts are made to get handicapped children, even those with multiple handicaps, into nursery schools at an early age, often by three years of age. Repeated reports show that the handicapped child in such a facility often will become more independent and learn to adjust and to socialize better. Thus, parents often get a better impression of the child and his ability.

When few services are available to the parents, the family reaction and interaction to an early diagnosis can be very different. Such parents tend to remain in a state of hopelessness, despair, and confusion. Not infrequently, these are the families that isolate themselves from the community and withdraw from social contact. This, then, can become a vicious cycle which increases the anxiety and despair of the family and accentuates the child's difference from other children. It is impossible to measure in any accurate way just *how* valuable service for the child and family are in the early years of the child's life.

The following example will make clear the feelings of two mothers in similar situations: Soon after birth, a mother of a mongoloid baby was told, "This is the worse I have seen—the baby cannot live." The child is now two years old. Family adjustment has been very difficult. In contrast, another mother of a mongoloid child was told, "You take the baby and love her. We will help you along." Imagine the difference in family acceptance and adjustment! This mother did not feel so alone and helpless. It cannot be over-emphasized that if a family can be offered help, in the form of service, there will be less feeling of rejection and despair.

I. Family Reaction to Early Identification

Family reaction correlated with availability of services

□ In any family, even those considered well-adjusted and healthy, stress periods occur. In the family with a handicapped child, certain stress periods have been identified and discussed in the literature. Murray⁹ was among the first to indicate the need for lifelong counseling, recognizing that crises will continue to occur. Several good lists of crisis periods have been documented. Hastings⁵ list of seven is important and is frequently cited: 1) birth; 2) developmental delay; 3) school entrance; 4) adolescence; 5) vocational planning; 6) death of a parent; and 7) institutional placement.

Many of us can recall specific examples of families going through these crises. Indeed, some may have personal experience of such times of stress. Regardless of what episodes come to mind and how the particular experience was handled, it is agreed that the supporting role of an understanding professional, with related training and experience, did or could have helped greatly. The American Medical Association has a similar list. I mention it mainly because so much adverse feeling has been directed to the physician and his poor handling of such problems with families. I am convinced that the medical world will be better prepared in the future and hopefully will also understand and appreciate the role of other professional people in dealing with such families. Here are the 12 stress periods listed by the AMA: 1) the family's first suspicion that the child is handicapped; 2) final diagnosis; 3) school entrance; 4) rejection by peers; 5) sibling relationships; 6) acute illness; 7) general family crises, including moving, succeeding pregnancies, etc.; 8) sexual problems at puberty; 9) vocational adjustment; 10) marriage; 11) decision on placement; and 12) separation following placement.

It is important to note that the definition of a crisis depends on its being so defined by the affected family regardless of whether the events meet social and clinical criteria. What may be a marked crisis for one family may be only a minor incident for another family.

In the course of normal development, certain stress periods occur. For years, people involved with human growth and development have struggled to help parents understand and prepare for these periods, e.g., the "terrible" two year-old. Handicapped or not, the basic needs of all children are the same. They are, first and foremost, children.

Wolfensberger¹⁷ makes an interesting classification of three types of crises: 1) the novelty shock, when unsuspecting parents are first told; 2) the value crisis, when parents become aware of child limitation and have emotional rejection because the child cannot live up to expectations; and 3) the reality crisis, when external forces only partially controlled by parents result in an almost impossible situation, e.g., death of a spouse or physical demand made by the child which cannot be met by the family.

Parents in *novelty shock* need information and support. It must be understood that in such a state of shock, only a limited amount of information will be grasped by parents; therefore, several meetings will be necessary for the parents to understand. Those in *value crisis* need prolonged counseling or personal therapy. Parents almost always plan for and expect their children to be healthy, normal, and capable. Again, time is required to adjust to any

II. Periods of Stress for the Family

The A.M.A. list of crises

Three types of crises can be classified

limitation which the child may have. Those in *reality crisis* require practical, down-to-earth help, such as home management, special schooling in community or institution, workshops, etc. And, of course, a wide range of services to meet the needs of handicapped children at all age levels is needed.

□ Much has been written regarding the role of counseling. Only during the past two decades have professionals really given much thought to this service as a necessity for parents. A trickle of reports relating to parent counseling came in the mid-1940's. These were, for the most part, biased by including mainly mothers (little to do with fathers) and then primarily the middle-upper, white class who were main consumers of available clinic services. Often these were also mothers of the more severely handicapped; therefore, most of the results report concerning parent-counseling are more specifically relevant to this group of parents.

An extensive survey conducted in 1961^{11,12,13} indicated that physicians viewed the counseling of parents as their main role. However, when compared with answers to a questionnaire to parents, results showed that perhaps the physician would do well to leave this aspect of management to other professionals! An interesting survey by McIntire and Kickhaeker,⁸ of parents who received services in clinics for the handicapped, revealed that parental satisfaction was much higher when a clinic *team* gave service. Parents also expressed greater satisfaction with diagnostic evaluation than with guidance and counseling help. Perhaps the clinic with a team, or the multi-discipline approach, is more satisfying to parents than the private practitioner.

The good counselor listens; shares information; is well-informed about available services and referral procedure; does not make decisions for the family but lets the family work through their own feelings to a possible solution. He sees the parent as a parent and not primarily as a patient. Furthermore, he has worked through his deep-seated attitudes toward various handicaps. He, of course, has had training and experience.

The one-session, one-shot approach which was once widely used is now being replaced by many sessions. Some parents who have seen many specialists may still be ill-informed because of inadequate interpretation and counseling.

Murray⁹ defines the following six areas listed by parents as important in counseling: 1) acceptance of the fact; 2) financial burden and reality implications; 3) emotional tension in parents; 4) theological conflict; 5) need to distinguish between long-term versus short-term decision-making; and 6) inept, inaccurate, and ill-timed professional advice. Added to this should also be the importance for *both* parents to be seen and informed as well as *good* communication between the involved parties—honest, down-to-earth language with sincerity and empathy, but not pity and sympathy. Repeated adequate counseling is not, however, the whole answer.

Kelman,⁶ in 1957, was among the first to emphasize that repeated interpretation and supportive and reassuring counseling are insufficient if practical help in *home management* and daily care of the child is not also available. Counseling must also include more information on *prognosis* and *planning*.

III. Parental Counseling

Attributes of the good counselor

Parental preferences in counseling

In the past, etiology, diagnosis, and parental feelings have been foremost in parental counseling. Counseling should not be based just on today's services but also services likely to be developed in the future. This is especially true with parents of a very young handicapped child. Perhaps nothing changes parental attitudes more than to see the child progress in some of the basic home skills as, for example, toilet training and feeding. Genetic counseling will also be more important in the future and professionals will need to be well informed about it.

□ Few studies of the group counseling process are controlled and statistically adequate. Harris and Schechtman⁴ assigned parents of children in a day-care center randomly to three different types of groups: 1) lecture; 2) group discussion with group leader; 3) informal interaction with day-care director for a total of 10 sessions over a 20-week period. All expressed satisfaction. Those in lecture groups, however, were very satisfied, those in informal contact groups slightly less satisfied, and those in discussion groups least satisfied.

□ Parents' groups such as the associations for retarded children have served several purposes. When first organized, they were accused of passing on misinformation, becoming preoccupied with pathology, creating disturbances in other parents, etc. Now, however, there is good agreement that such parent groups meet needs no professional or clinic group can or is meeting.

It cannot be denied that the handicapped child does have a profound effect on the family. It is my belief, however, that our society will continue to increase its *understanding* and *concern* for the handicapped to the extent that we will learn to overcome many of the difficulties we have today. The future must provide more *services* and more adequate *acceptance* of the handicapped as worth-while members of our society. As this becomes increasingly real, we shall see families become stronger and have more healthy reactions to each other as well as to the community.

Group Counseling

Parents' Groups

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Adapting School Psychological Evaluation to the Blind Child

Those of us who have a professional concern for people need ways of assessing human characteristics. We need methods of appraising individual strengths and deficits in order to provide effective services for people. In no area of human endeavor is the need to assess and evaluate individuals of greater importance than in education. A continuing evaluation of each child is the basis of good teaching. It is difficult to envision a school program that does not depend heavily on evaluation as a means of determining how and what to teach and of judging the effectiveness of the teaching effort.

The need to evaluate exists throughout the total structure of education. It is necessary that we appraise the school readiness of the first grader, we must know what is happening to the junior high school student, and we must judge the achievement of those who seek college training. It is just as true that we have the responsibility for evaluating all levels of scholastic ability from the barely educable to the gifted.

□ The bulk of our school population presents no great problems in individual appraisal since we have more than 50 years' accumulation of evaluative instruments which are capable of supplying us with a great deal of the information we need to make judgments. There is, however, a segment of the school-age population which presents problems in evaluation because they have handicaps which make it impossible or unfair to appraise them by the same methods we find appropriate for most boys and girls. Blind or visually impaired children make up one group who perplex us when we attempt to evaluate personal characteristics which are important determiners of progress.

From the point of view of the school psychologist, it seems that although we cannot discount the totality of the individual in any human enterprise, three components of this totality are related intimately to the child in school. In order to understand the individual as a learner we must know about his pattern of intellectual characteristics, his neuromotor components, and his personality. This is not to suggest that there are not other factors which bear on the child in school. For example, we recognize the importance of health and family dynamics to the youngster as a learner, but the psychologist leaves these areas to other specialists who bring their competencies to the tasks of understanding people. The physician and school social worker can contribute much information to the total understanding of children in school.

The appraisal of intelligence is traditionally the responsibility of the school psychologist. When the psychologist refers to intelligence he is not so much concerned with IQ, but rather with the *pattern* of mental abilities as they exist in an individual. It is simply impossible to summarize the intellectual qualities of a youngster in a two or three digit number. Every teacher knows

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Evaluative Instruments Backed by Long Experience

that among children of the same numerical IQ there is considerable variation of specific abilities. This holds for children with no apparent handicap as well as for children who have visual handicaps.

□ When it is necessary to acquire the most complete information about a child's intellectual qualities, the school psychologist is likely to be called into service. Through careful administration of individual intelligence tests the school psychologist usually can obtain considerable information about a youngster that cannot be obtained by other methods. The advantage in the individual test is in the opportunity it affords to the qualified person to study many facets of the child's behavior.

Evaluation of mental characteristics in visually impaired youngsters is at once the same as and different from the evaluation of typical children. It is the same because we are faced with the problem of finding adequate means of understanding individuals as intellectual beings. It is different in that the devices we have for appraising most children are in some ways inappropriate for use with those whose sight is impaired.

Intellectual evaluation of the usual child is not difficult for the trained person; any of several standard instruments may be used according to the age of the individual. These tests are samples of learning drawn from the experiences which, it is assumed, are available equally to all people of a given age in the culture. Here is the point at which we encounter difficulties in seeking to appraise the mental ability of visually impaired youngsters. The very nature of the impairment deprives the blind person of much experience that is easily available to others in the culture.

The appraisal of intelligence, then, presents some problems which we must find ways to surmount if we are to provide information useful in helping blind children to learn in school. The question is do we have ways of finding what we need to know. The answer is a qualified yes.

There have been few efforts to devise intelligence scales specifically for the visually impaired. One effort in that direction is the Hayes-Binet Intelligence Tests for the Blind. This approach adapted certain of the sub-tests of the 1937 revision of the Stanford-Binet Intelligence Scale, using verbal items in the standard way or, in some cases, employing braille material. This scale served its purpose well but was limited in that all blind children are not proficient in braille.

One factor which may have inhibited the development of tests especially for the blind is that relative to the general population there are few blind people and thus a commercial demand for such instruments does not exist.

□ When called upon to evaluate intellectual characteristics in visually impaired individuals, psychologists commonly use the instruments available for testing the non-handicapped, adapting the procedures to the limitations which the lack of adequate sight imposes. This writer has found the Wechsler Intelligence Scale for Children (WISC) a reasonably suitable device for understanding the intellectual capacities of blind children with whom he has worked in the school environment. It is necessary, of course, to have some reservations about the reliability of results when the test is used with a group of people

Individual Intelligence Tests Provide Considerable Information

Validity of some instruments could be challenged when used with blind

Few intelligence scales specifically for blind

WISC Can Easily Be Adapted

who differ from the population for whom the instrument was designed. Another source of contamination of unknown influence lies in the need to depart somewhat from the usual directions and procedures to accommodate the visually impaired youngster. Further, it is understood that somewhat less information about some of the mental characteristics of the blind child is available than would be the case of the unhandicapped. If these qualifications are accepted, the WISC can furnish a considerable amount of information about the assets a particular blind child may possess for learning in school.

The WISC is organized so that it appraises two broad intellectual areas: one involves verbal abilities and provides tasks which may furnish insights into several of the traits believed to be commonly utilized in school learning; the other area surveys visual and motor skills. This fortunate division into two scales makes the WISC an instrument that can be adapted to the purpose of measuring certain aspects of mental ability in visually impaired children. We can simply delete the visual and motor skills part of the test since it yields an IQ which is independent of that derived from the individual's responses on the verbal portion of the test. By this procedure, we can provide a general estimate of intelligence in terms of a verbal IQ and we can, more importantly, learn something of the relative strength of certain aspects of verbal intelligence as they may exist in a blind child.

The convenient arrangement of the WISC makes it the preferred instrument for evaluating intelligence in youngsters who lack visual resources. In contrast, the Stanford-Binet Intelligence Scale has at each age-level a mixture of both verbal and visual-motor items, making it difficult to get clear impressions of how individuals compare unless the subjects are capable of undertaking each kind of task.

The practical way of regarding the problem of children who cannot see is to acknowledge the reality of their condition and to recognize the limits which life has imposed. The impaired nature of the blind person must be accepted and the task is to identify and develop those characteristics which the individual does possess and from which he can gain the greatest level of satisfaction. It seems more positive to look at the individual in terms of what he does have to work with than to lament what he lacks. The visually impaired youngster will never be able to do well on tasks depending heavily on visual-motor coordination, so it is relatively unimportant that concern be given to this area of intellect.

□ As schools exist presently they are verbal in nature and the verbal and abstract aspects of intelligence are of crucial importance. If a child possesses strength in verbal intelligence he may not be greatly handicapped in his effort to assimilate school instruction. This may be more true today than it was in the past before the advent of electronic devices made it possible to minimize the problem of reading and writing for the blind. Accepting this concept, then, we should be able to gain insight into the areas of intelligence which the blind child will need to make progress in school.

This writer's experience with blind youngsters over the past 10 years leaves him with great admiration for these people as a group. More often than not,

Testing Should Measure Verbal and Abstract Aspects of Intelligence

these young people seem to ignore their handicap and participate in the activities of school in ways that belie their visual limitations.

If we agree that we can settle for an appraisal of the verbal intellectual characteristics of blind children, we may be able to profit from the insights to be gained from administering the Verbal Scale of the Wechsler Intelligence Scale for Children. What, then, can we learn from such testing?

The Verbal Scale of the WISC provides tests which seem to furnish insight into six components of intelligence, all of which appear to be related to the sort of mental activity which success in school demands. Further, we can test the child who is visually impaired with almost no need to depart from the standard procedures, allowing us to accept the test results with about the same confidence as the results obtained by testing an unhandicapped child.

Those with some familiarity with the WISC will wonder how the child who functions below the five-year level can be tested. When the psychologist's judgment indicates the need for a more elementary approach, the verbal sub-tests of the Wechsler Pre-School and Primary Scale of Intelligence (WPPSI) will furnish much the same sort of information as that derived from the WISC. We would have to acknowledge, however, that the WPPSI has been in service for a short time and we do not yet have much research data accumulated.

□ The Wechsler instruments furnish a means of observing the blind child's intellectual functioning through his behavior on the five regular tests: information, comprehension, arithmetic, similarities, and vocabulary. A sixth test, digit span, usually considered as supplementary, is also of value for use with the visually impaired because it relates to auditory memory, a trait often well developed in people who cannot depend on vision to help them cope with their world. This writer believes that analysis of data provided by such a test battery can be expected to foster an understanding of the blind child which will be helpful to the teacher as he plans the youngster's educational experiences. Let us consider more specifically the kind of information which can be derived from Wechsler results.

The information sub-test appraises the extent of factual information available to the individual. This amassing of information reflects partly the retentive capacity of the person in question and it may also give us data for inferring something about the quality of the subject's cultural milieu. For educative purposes, such information is helpful in gauging mental alertness and the readiness of the child for school experiences.

The comprehension sub-test can help us get some impression of the individual's power for drawing into the solution of present problems, principles which have developed out of his experiences. This allows us a glimpse of the way the youngster can apply principles in novel situations and gives an impression of his ability to synthesize and organize things out of the totality of his experience.

The sub-test which appraises the child's comprehension of the elementary concepts of arithmetic can also be of value to the teacher in that it allows inferences about the alertness of the individual as revealed by the way he

WPPSI could be used with mentally retarded children

Five Regular Tests and One Supplementary Are Useful

Information sub-test

Comprehension sub-test

Arithmetic sub-test

retains, assembles, and manipulates the elements of the problems. This is the only one of the verbal tests which necessitates departure from the standard directions. Because certain of the more advanced problems are ordinarily read by sighted youngsters, it would be necessary for the examiner to read the problems to blind children. It is hardly likely, though, that this will be a factor in testing blind children who function at a retarded level.

One can gain some insight into the blind child's ability to reason abstractly from the youngster's performance on the similarities sub-test. The items are designed to elicit responses which afford the school psychologist the opportunity to judge the quality and range of the individual's capacity for manipulating verbal symbols. This quality is of prime importance to progress in our schools, which are, in the final analysis, verbal institutions.

Similarities sub-test

The blind child's work on the vocabulary sub-test can tell us much about his resources for accurately conveying his own ideas in words and it can also show us his potential for understanding the subtle meanings which others might attempt to communicate to him.

Vocabulary sub-test

The final part of the intellectual evaluation is the digits sub-test which furnishes insight into the ability of the visually impaired youngster to remember what he hears. Strength in this area is especially important to the child who cannot see, for he does not have the means available to sighted youngsters for checking and refreshing the memory by referral to visual materials. The sighted child can, for example, refer to the teacher's illustration on the chalkboard; the blind child depends more on his power to retain what is presented by auditory stimulation.

Digits sub-test

Possibly we can accept the idea that in teaching children, regardless of whether they are normal or handicapped, we must know something of the characteristics each child brings to school. There is a need for some way of identifying the characteristics and measuring the extent of abilities that may exist in the individual before we can understand him as a learning organism. Thus, evaluation is basic to teaching.

With blind children the process of measuring the full range of intellectual characteristics is complicated by the fact that it is necessary to adapt our standard measuring devices to the limitations imposed by blindness. The Wechsler Intelligence Scale for Children is of value in appraising blind children because it can furnish information about the verbal abilities of such children and it is, after all, the verbal traits which are most vital to success in the verbally-oriented school.

□ The problem of appraising the neuro-motor components of the blind individual is greater than that encountered in attempting to measure intelligence. This area can be easily tested in sighted children by using the Bender Visual Motor Gestalt Test; such an approach is impossible with the blind. We can consider the point of view that it may not be quite so important to appraise the neuro-motor components of the visually impaired since such skills as handwriting and reading, as these are traditionally learned in school, will not need to be mastered. This attitude would be in keeping with the assertion that we should be more concerned with the intact abilities than in

Neuro-motor Components Not Measurable

lamenting those things which the child does not possess. At any rate, we must settle for the fact that there is no way to measure neuro-motor abilities in the blind that would produce much understanding of them as learners, as far as this writer knows.

Measuring personality in children is not a highly sophisticated procedure and the results obtained are often not truly reliable. The most common method of personality appraisal in schools is the paper and pencil test, a highly uncertain business at best. If this is the method by which personality is to be assessed, it is not a difficult process to read the items to the blind child and record his responses for him. The only difficulty is that it is a time-consuming process since the examiner must repeat items as many times as is necessary for the child to understand and make his response.

This writer believes that the best way to know about people and to discover their personality features is to observe their behavior. If a teacher will watch the manner in which children react to the circumstances of their environment it is quite possible to interpret adequately the needs within the individual that trigger his behavior. The teacher has the same opportunity to observe the behavior of sighted children and those who cannot see. There would, therefore, appear to be no particular problem in understanding the non-sighted child's personality with the same degree of clarity as for the child who has no visual impairment.

If the school psychologist is asked to appraise a blind child's personality, he probably would resort to the technique of observing behavior throughout his contact with the child and, perhaps, to follow-up observations in several aspects of the youngster's school environment.

□ In summary, it is important for the school to have knowledge of individual traits and needs in youngsters if the best educational opportunity is to be offered to all. It is easier to measure the psychological components of the normal child than to measure them in the blind child.

From one point of view, the schools are essentially verbal in nature and the verbal areas of intelligence are, therefore, of primary importance in school success. While it is possible to do a wider appraisal of the characteristics of normal children, the difficulties in gaining good insight into the verbal abilities of blind children are not insurmountable.

It seems reasonable to accept the idea that it is what the blind child possesses that is important and that certain capacities available to normal children are simply not open to aid blind children in learning in school. We will do better, then, to work with those abilities we can discover than to lament those the organism will never have in normal amount.

The Wechsler Pre-School and Primary Intelligence Scale and the Wechsler Intelligence Scale for Children are so organized that they will yield useful information about the verbal areas of intelligence in the blind. These instruments, properly analyzed, can tell us much about the assets of blind youngsters for learning.

There is relatively little that we presently know that can help us measure the neuro-motor component of the blind child.

Personality features best discovered through observation

Summary

Personality appraisal in the blind child is not greatly different from measuring personality in the sighted child. Paper and pencil tests can be administered with only a little inconvenience. Observation of behavior is, in any case, a more reliable way of understanding the personality of all children, sighted or blind.

SRS To Develop Information Systems for Welfare Agencies

The start of a \$4 million demonstration program to develop model computer-based information systems designed to serve state and local agencies that administer programs partly funded through the Social and Rehabilitation Service, Department of Health, Education, and Welfare, was announced recently by SRS Administrator Mary E. Switzer.

The information system will eventually serve all of the data needs of state and local welfare agencies, agencies that serve the handicapped, and other welfare-related agencies. SRS is giving high priority to information-gathering and strengthening of management, including development of greater capability of forecasting public assistance and medicaid costs.

The nationwide demonstration program will be funded by the federal and state governments. Model systems will be set up in California, Florida, Maine, and New York. Approximately a fourth of the \$4 million total comes from state funds. Initial federal funding of these projects is made possible through a grant made under Section 1115 of the Social Security Act.

The non-project states will work closely with one of the four project states most similar in administrative structure. The 36-month demonstration program will make full use of automatic data processing. In-depth systems analysis and painstaking attention to design of information systems should result in a coordinated, comprehensive system that will reduce administrative costs. Designs will be transferred—in whole or in part—to other states as the demonstration program progresses.

Project directors in the four model states will be aided by advisory groups made up of representatives from cooperating states. Individual group members will act as liaison with their own states to assure maximum coordination.

The Importance of Motor Development and Mobility Skills for the Institutionalized Blind Mentally Retarded

Recently, the Division of Special Education and Rehabilitation, Boston College, in cooperation with the Walter E. Fernald State School, Waverly, Massachusetts, completed a three-year, federally-sponsored project (RD 2065-5-69-C2) concerned with teaching orientation and mobility skills to institutionalized blind mental retardates. This project was entirely financed by the Social and Rehabilitation Service of the Department of Health, Education, and Welfare.

The purpose of this project was three-fold: first, to determine if institutionalized blind mental retardates were capable of profiting from a systematic program of orientation and mobility training; secondly, to what extent they would profit from such a program; and finally, to determine the most effective methods and approaches applicable to this segment of the blind population. The project began in March 1966, and terminated in February 1969.

How extensive is the problem of the blind mentally retarded in state institutions? As a result of a nationwide survey conducted in January 1968 as part of this project, a questionnaire was devised and sent to 142 state institutions for the mentally retarded as listed in the American Association of Mental Deficiency's *Directory of Residential Facilities for the Mentally Retarded*, 1965. This questionnaire was sent only to state-supported institutions, and not to private facilities or public or private residential schools for the blind. The results of the questionnaire are based on the returns of 136 out of 142 state institutions, representing 47 of 49 states, plus the District of Columbia. Alaska is not listed in the directory and the Commonwealth of Puerto Rico has only a private institution for the mentally retarded.

□ 1. There is a significantly large number of blind mentally retarded children and adults in residence in state institutions for the mentally retarded.

2. More than half of this population (66 percent) are between the ages of five and 25 years, the crucial years in education and rehabilitation.

3. Many in this population, in addition to blindness and retardation, have physical and emotional problems. This was determined by an "additional comments" section on the questionnaire. Truly, the descriptive terms "multiply handicapped" is applicable.

4. Some of the institutions indicated that three of the major reasons they lacked programs were (a) problems of financial assistance and resources, (b) lack of effective programs in other state institutions which could be utilized as reference models, and (c) lack of trained staff in this area.

5. The approximated total population of 6,797-6,900 blind mentally retarded persons in institutions for the mentally retarded represents various degrees of retardation, from profoundly to moderately retarded.

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Survey Findings

Number of States Reporting	48
Returns	95.8%
Number of Residents*	6,797-6,900
Sex Distribution*	
Males	3,058-3,100
Females	3,739-3,800
Age Distribution	
	Number Percent of Population
0-5	370 6%
5-18	2,872 44%
18-25	1,451 22%
25+	1,844 28%
Total	6,537 100%

*Some institutions reported a range of figures or errors in tabulation.

6. I would not hesitate to postulate from the survey results that approximately 20 to 40 percent of the blind mentally retarded segment in institutions for the mentally retarded could probably profit from a systematic program of orientation and mobility training, and also from additional training in the habilitation or rehabilitation areas.

7. Less than 12 percent of the institutions indicated that they presently had some form of education or rehabilitation program. A priority for program development needs to be established, either on a national or state level, in those states that have reported a significantly large population of blind mentally retarded persons.

8. The present survey results represent only a small sample of the blind mentally retarded population. It did not include those blind mentally retarded individuals who may be at home or in private institutions for the mentally retarded, or those who may be in residential schools for the blind.

9. Finally, I would not hesitate to project from the above figures that there are probably between 16,000 and 24,000 individuals in the United States who are both blind and mentally retarded. Taking the number of blind persons in the United States as 500,000 would result in an incidence of retardation in the blind population of approximately five percent. Incidence of mental retardation in the total population of the United States has been estimated as somewhere between three and 10 percent.

The Walter E. Fernald State School is a 200-acre state-supported institution for the mentally retarded, located approximately 12 miles west of Boston. The population of the school at the beginning of the project was about 2,100 residents, of which approximately 240 were both legally blind and mentally retarded. The overall sighted population in the past three years has decreased to about 1,600, while the blind population has changed very little. Originally, the blind population represented about 10 percent of the total population; now it is about 15 percent. The majority of the blind residents are housed in a separate unit for the blind (built in 1954 as a result of the increase in the incidence of retrolental fibroplasia). This unit, named the Greene Blind Unit after an early superintendent, is a self-contained residential, educational, social, recreational, and medical unit. It has a 248-bed capacity and houses 202 residents of various age levels and degrees of mental retardation who are also legally blind. Chronological age levels range from preschool to geriatric; abilities from the profoundly to the moderately retarded. This population consists of both adventitiously and congenitally blind.

The school and its population

In the early spring of 1965, the peripatology staff of Boston College evaluated the entire population of the unit. The purpose of this initial evaluation was to determine which residents could possibly profit from orientation and mobility instruction. This was accomplished through on-site observations and the use of a checklist and evaluation materials developed for this purpose. The results of this exploratory evaluation indicated that approximately 43.6 percent of the blind residents were possible candidates and could possibly profit from such instruction; 51.9 percent of the residents were deemed unacceptable because of poor responses, nonambulation, or severe physical im-

pairment; and 4.4 percent were classified questionable because the examiners were unable to test them effectively due to deafness, or because they were at the time housed in the institution's main hospital unit. It was felt that if an orientation and mobility program were established, the skills taught to these residents could be transferred to their daily living routines, thus providing a functional, purposeful, and realistic program.

During the three-year period of the project, 33 individuals (16 percent of the total blind population) received orientation and mobility instruction. The following represents some of the general characteristics of the population sampled. Originally it had been estimated that about 88 residents might receive instruction during this period, but quality travelers were the main objective of the principal investigator rather than quantity.

□ 1. The sex distribution consisted of 23 males and 10 females.

2. It was noted that 18.1 percent of the sample group were twins. This concentration could be the result of prematurity of birth and subsequent placement in incubation, which resulted in retrolental fibroplasia and mental retardation to both or one of the twins.

3. IQ ranged from 30 to 81, the mean being 52.6. The instruments most commonly utilized for intelligence assessment were the Hayes-Binet, the Stanford-Binet, and the Verbal Scale of the Wechsler.

4. The age range was from 12 to 62. An age of 12 being a flexible criterion for selection for mobility training.

5. The number of years institutionalized of the sample group ranged from one year, four months to 58 years, seven months, the mean being 15.7 years.

6. Approximately 82 percent of the sample group had spent more than half of their lives in state institutions for the mentally retarded.

7. It was observed that long-term institutionalization resulted in "institutional characteristics," as was true of the majority of the sample group. Such traits include systematic routines, group living, little chance for decision-making, lack of contact outside the institution, lack of time and money values, slower routine cycle, excessive mannerisms in the congenitally blind, lack of body awareness and basic concept formations, and general lack of experiences.

8. Many of the sample group were receiving daily medication for custodial purposes.

9. In addition to blindness and mental retardation, additional physical and emotional handicaps were numerous. Such physical defects as hearing loss, partial paralysis, epilepsy, brain damage, and psychotic behavior were noted.

10. The most common cause of blindness among the sample group who received orientation and mobility instruction was retrolental fibroplasia (61 percent), other causes being venereal disease, cataracts, retinitis pigmentosa, toxoplasmosis, and incomplete anophthalmos.

11. The overall length of blindness of the sample group was a mean of 20.4 years, which was based on the date of the first detection of blindness by the Massachusetts Commission for the Blind, the range being eight years, five months to 41 years, one month.

General Characteristics of Population Sampled

12. It was observed that posture and gait have a significant relationship to mobility. During this project the congenitally blind residents, especially the younger ones, had evidenced poor posture and gait patterns. These apparently "abnormal" patterns were acquired through trial and error and, in reality, provided a functional means for obtaining information about the environment, particularly about obstacles in their paths. Examples of functional "abnormal" patterns include handclapping, everting of feet, foot slapping, and short, shuffling strides.

13. The younger congenitally blind residents seemingly had a greater number of peculiar mannerisms (sometimes referred to as "blindisms" or ego erratic behavior) than was detected among those adventitiously blind. It became apparent to the project personnel that these mannerisms are one way for the inactive blind retardate to use up excess energy, as these blindisms disappeared while the residents were involved in mobility lessons and returned at their conclusion. Evidently, the mannerisms, like postures and gaits, are of long duration, and all are difficult to control. One conclusion from this observation is that early direction of the blind person's energies into positive activities might prevent most of this aberrant behavior.

The project program was divided into three year-long phases totaling the full duration of the federal grant.

□ During phase one (March 1966 to February 1967), the principle investigator gave instruction to ten residents. Methods and techniques which had been found to be effective with the non-retarded blind were to be used, although adaptations and revised methods were to be utilized when particular standard techniques proved ineffective. All teaching was conducted on a one-to-one basis and the program was designed to follow a logical sequence.

**Ten Residents Instructed During
Phase One**

1. Use of a sighted guide.
2. Self-protective techniques for traveling without the aid of the long cane within familiar and non-familiar surroundings.
3. Developing protective methods and independent traveling in daily living routines.
4. Body and concept development, environmental orientation.
5. Indoor travel with prescription cane.
6. Outdoor travel with prescription cane.
7. Institutional ground travel.
8. Residential—outside the institution.

During this initial phase adaptations had to be made as a result of some deficiencies noted in the following areas:

Deficiencies were noted in phase one

1. Basic body concepts and the concept of the body's movements in the environment were developed through the use of artist's mannequins transferring to the student's body and then to another.

2. Concepts of shape, form, texture, and dimension as related to the instruction were developed through the use of an orientation and mobility vocabulary taught through concrete aids and repetitions. The most effective approach was "Tactual, Actual, Tactual" (TAT).

3. Area of self-help skills—the ability to locate, put on, and return one's clothing, putting on rubbers or overshoes, tying shoes, buttoning and zippering, putting on gloves.

4. Basic environmental experiences related to, and necessary for, outdoor orientation and travel (nature of sidewalks, streets and traffic patterns, etc.) were augmented through the use of tactual maps and aids.

5. The inability to repeat and follow a number of sequential directions, as related to orientation and mobility instruction, resulted in the development of programmed tape instruction on a performance board. This consisted of a tape with verbal instructions of increasing difficulty; a 2' x 2' piece of cork mounted on a piece of masonite, with various patterns of lines cut into the cork; and a number of colored rubber disks to determine the resident's performance in following the verbal taped directions. Once a resident was proficient in performing on the taped instruction and performance board, he was then transferred from the performance board to a tactual map of the institution grounds and given further verbal instruction. The effectiveness of this approach is still being studied. Tentative results so far indicate that it is of some value.

Taped instruction and performance board were developed

Probably the most noted deficiency in the first phase of the project was a lack of goals for travel. Once an individual became proficient in developing travel skills within the institution's grounds, the only time he was allowed to travel independently was when he was having a mobility lesson accompanied by the mobility personnel. He was not otherwise allowed to travel outside of the unit unless accompanied by a member of the unit's staff. This major problem was eliminated in January 1967, when the institution's superintendent, Dr. Malcolm C. Farrell, authorized the principal investigator of the project to allow independent travel within the grounds of the institution to those residents deemed capable of it.

□ Now that the residents had the permission to travel, but still nowhere to go, it became necessary to locate and establish goals for independent travel. With the assistance and cooperation of Mr. Kenneth Bilodeau, the principal of the institution's schools, seven of the younger blind residents were integrated into a sighted pre-vocational program located within the institution but over half a mile from the Greene Blind Unit. This enabled these residents to travel independently over a mile each day to the pre-vocational program. Another young girl was integrated into an industrial therapy class, also located on the institution grounds. Three of the older male residents were trained to work in the institution's laundry in a full-time work program. Two more of the older males were trained to be messengers between the teachers in various buildings and the principal in the school department office. These 13 individuals who had attained proficiency in orientation and mobility skills were placed within the first two years of the project.

Travel Goals Linked With New Activities

During phase two (March 1967 to February 1968) the principal investigator, aided by graduate students in the peripatology program of Boston College, was able to increase the number of residents receiving instruction. The procedures used were similar to those employed in the first phase, except

Program divided in phase two

where experience had suggested adjustments. The original sequential program was revised due to areas of deficiency noted in the residents in phase one. The new program was divided into two major areas: pre-cane skills and travel skills.

Pre-cane skill areas represented the following units: (1) body concepts; (2) understanding of body relationships for gross body movements; (3) environmental forms; (4) environmental patterns and positions; (5) textures and dimensions; and (6) geographical relationships in the environment.

The travel skill area represented the following units: (7) utilizing a sighted guide; (8) self-protective methods for independent mobility, including forearm technique, forearm plus trailing, and object location; (9) touch technique, indoor and outdoor; and (10) residential travel.

□ 1. It is probable that anything between 20 and 40 percent of the blind mentally retarded population in many states are capable of profiting from a sequential, systematic program of orientation and mobility training.

2. Apparently the same basic skills and techniques of orientation and mobility training applicable to the non-retarded blind are also applicable, with a few variations, to the blind mentally retarded.

3. Seemingly the most important differences in developing orientation and mobility skills with blind mentally retarded persons are the level and methods of presentation and the amount of time required to develop such skills.

4. It has been apparent from the project results that the amount of time required is between three and 10 times as great as the time required for training the non-retarded blind, and up to three times as much time must be devoted to pre-cane or orientation skills as to actual cane techniques.

5. Before the rehabilitative process begins with blind mentally retarded persons, they should first acquire some degree of proficiency in orientation and mobility skills. Mobility proficiency might be used as part of the evaluation criteria for rehabilitation.

6. A great many concrete orientation and mobility teaching aids need to be developed further and refined in order to develop those concepts and skills necessary for teaching independent travel.

7. Orientation and mobility training should be a means to an end and not an end in itself.

8. Orientation and mobility training, though important, is only one area in the rehabilitation of blind mentally retarded persons and should be considered an integral part of the whole rehabilitation process.

9. In addition to being the first phase of the rehabilitation process, orientation and mobility training has produced noticeable changes in the physical, emotional, and social well-being of many of the residents involved in this orientation and mobility project.

10. It is evident that orientation and mobility training should be a part of the curriculum of those state institutions for the mentally retarded which have a significant number of blind persons among their population.

General Conclusions

The Blind Child Who Functions on a Retarded Level: The Challenge for Teacher Preparation

In the early part of this century, it was the consensus of educators of the blind that multiply handicapped blind children should be taught by teachers of the mentally retarded because mental retardation was the primary handicap. However, all too often teachers of the mentally retarded felt that these children should be taught by teachers of the blind, because they were unfamiliar with the techniques used in teaching blind children.

The results of these attitudes are well known. The child is passed back and forth until he passes the age of formal education. He remains with his family until he becomes such a problem that he can no longer be cared for at home. Next he is confined to an institution, becoming a responsibility of the state. Many of the children now in institutions have traveled this route. The challenge is to prevent this from continuing to happen.

We in teacher training must accept the responsibility for our part in perpetuating the idea that teaching should be restricted to single handicapping conditions. However, we, as a professional group, are finally doing something about the situation. The recent rubella epidemic, along with an increasing number of infants surviving with serious handicaps, has made both professionals and non-professionals aware that something must be done for these children who have in the past been denied educational opportunities.

□ Although there are increasing numbers of references to the multiply handicapped child in professional journals, the vast majority of these articles deal with the fact that there are such children, with little discussion of the procedures for educating them. The question is not "Do these children exist?" We know they do. The question should be "What should we do with them?" The answer lies in the procedures teachers should follow to educate these children and what preparation they must have to implement these procedures adequately.

First of all, we in teacher preparation must stop training teachers only for certain categorical handicaps. We must accept our share of the responsibility for perpetuating the erroneous idea that only nice, bright, blind children should be the responsibility of teachers for the blind. We must also accept the responsibility for the patchwork-quilt design of teacher preparation for multiply handicapped children. Preparation for teaching blind students, plus a course in mental retardation, is not adequate background for teaching blind retarded children. The blind child who is functioning on a retarded level is not a blind child plus a retarded child. The two handicaps do not function as addends but as multipliers. When a child has the two together, we can no longer think of separate categories but of cumulative problems. When we

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Little of the Literature Deals With Education of the Multiply Handicapped

Methods of teacher preparation a problem

think in these terms, we can no longer think of the category "braille," the traditional picture conjured up of teaching blind children. First and foremost, we must think of what the child needs to make him an independent adult. It means little if a young student is taught braille when he has no self-care skills; complete memorization of the multiplication tables is of little benefit to a child who has such poor mobility that he cannot use his environment adequately. The problem, then, is one of teacher preparation, of what a teacher must know to meet all the needs of the student adequately.

Peabody College has begun a program in teacher preparation for teaching multiply handicapped children. Initially our main concern has been to determine what special knowledge and techniques a teacher should have if he is to provide a fruitful learning environment for these children.

□ One conclusion implemented in our own practicum experience is the necessity for a relative degree of structure. Many blind children do not respond to an unstructured situation. When retardation complicates the problem, most children will not profit from incidental contacts with the environment, however stimulating they may be. Teachers, then, need to know *how* to structure, *when* to structure, and *why* to structure.

Teachers also need to know how to program the learning situation. A child will have very different levels of performance in various areas; for example, he may have a low level of mobility but a high level of language performance. It is necessary to help the child to progress from his present functioning through a plan of sequential goals to a new level of functioning. When teaching a child to tie his shoes, for example, it is necessary first for him to cross the strings; that step, therefore, becomes the initial goal. The situation is similar to teaching roughness discrimination as a goal before teaching braille words. It becomes a matter of what *can* the student do, what *does* he do, and what *should* he be doing.

We have all heard of prescriptive teaching. It is nothing new or mysterious. It is, quite literally, "writing beforehand," "setting the direction," "planning ahead in relevant areas," and is something that *all* teachers should be doing.

It is necessary to establish priorities when working with these children. One child in our practicum had been refused admission to the school for the blind because she had never eaten anything other than a few soft foods and because she lacked the self-care skills necessary to button and tie. Yet this girl could braille a list of spelling words and later won honors in a piano recital. This child's lack of basic skills could be attributed to ignorance on the part of her parents, but we teachers can be just as guilty when we plan programs for these children. First things must come first.

□ Teachers need to be able to involve others in their programs. They need to know how to use psychologists, physicians, social workers, and other professionals; teacher aides, secretaries, maintenance men, and above all, other teachers. They need to know how to cooperate with all personnel to the fullest. More than one teacher has obtained much-needed manipulative materials from the building custodian by getting him interested in the program and then by drawing plans for him that could be easily executed in

Structured Program Necessary

How to program learning situation

Prescriptive teaching

Establishing priorities

Using Other Staff

his workroom. Aides and houseparents, if utilized, can be the best friends a teacher has. Teachers must recognize these sometimes hidden resources.

The cooperation of parents is also an important factor in attaining whatever goals a teacher has set. They can help bring a program to fruition or they can sabotage the effort. We as teachers all recognize the fact that it is far better to have parents with us than against us and that teachers in training need as much preparation in working with parents and other personnel as they do with students.

New teachers must have as complete a "bag of tricks" as possible. Acquaintance with many different materials, methods, and techniques will enable them to implement their programming and eventually reach their goals. Programs in teacher preparation should emphasize the teachers' understanding and knowledge of teaching methods for all types of disabilities. Emphasis should be placed on the needs of the children rather than on the materials. Although teachers should be able to teach without commercial materials (like the proverbial teacher on one end of the log and the student on the other), knowledge and use of Barraga and Stern materials, the Illinois Test of Psycholinguistic Abilities, the Cramner abacus, Instructional Materials Center, and others, and knowledge of the appropriate time to use them, can only enhance their program. Behavior modification, psycholinguistics, task analysis, time-out rooms, and programmed instruction should all be in the teachers' repertoire.

□ Above all, teachers should be able to evaluate the children. Where are the children now compared with last year, last month, last week? How do you know? What are the children learning? Can you prove it? Whether this is accomplished with traditional evaluative instruments, rating scales, or baselines, teachers must be able to evaluate their students' progress and, as a part of it, their own techniques. When evaluating both their own and their students' behavior, they must be able to analyze what is relevant.

Many will think that all this is fine, but that it is highly impractical for teacher preparation. An attempt, however, has been made at Peabody College to incorporate these ideas into a training program.

□ In 1967 we accepted our first students into a one-year master's degree program. Experience during that year showed that academic subjects went well, but that the practicum situation needed improving. This was apparently due to the fact that no one teacher with all the attributes listed above was also teaching the ideal practicum group with many different types of disabilities. Based on this experience, a grant application was submitted to the Special Projects Program of the U.S. Office of Education. The grant was funded for a "Team Teaching Practicum for Teacher Preparation in Multiple Handicaps."

A pilot practicum was studied for five weeks. Only when full funding and personnel are both available is there a real opportunity for testing hypotheses, so we tried to make the most of the pilot project. A team was hired, students were screened, materials were purchased, and the program was established.

The cooperation of parents

Evaluating the Children

Peabody Master's Program

Four areas of development were emphasized during the program: self-help skills; motor skills, which included everything from one child's holding his head up to mobility training; language and speech skills, ranging from non-verbal behavior to work on articulation; adaptive behavior, a catch-all for precept and concept development and such things as teaching one child to hold things and giving reading readiness materials to another.

Areas emphasized

Eleven children, ages three to nine years, with various types of handicaps, were chosen. All had been excluded from educational programs, being labeled "uneducable," "retarded," and "hopeless." During our screening, however, we found a wide range of abilities. The children were evaluated in motor, language, and adaptive behavior areas and grouped according to three functioning levels. Each of the three teachers on the team was in charge of one area with each child having one period each day with each teacher.

There were also several periods each day when all the children were taught as a group. Each morning there was a large group for singing; songs were written for each child and all learned to recognize their names from the songs. Auditory training was taught in a group, as was the quiet-time language development period. A feeding period was also part of the program and the trip to the cafeteria was a behavior goal set for the children. Six of the 11 made it. We worked with parents two days a week and saw a great deal of improvement in their attitudes and in their behavior management techniques.

We were pleased with the results of the practicum. We had our share of problems and made more than our share of mistakes. We are, however, hoping to continue the program, for we felt that it was good practicum experience for our graduate students. The team of teachers left at the end of the fourth week and the student teachers took over the complete program; they did a good job and learned a great deal.

*Results of the
practicum*

The children progressed beyond expectations during the program. Several observers came back repeatedly to observe and, seeing the progress of the children, they often commented that their ideas of how much multiple handicapped children are able to learn was changing.

The greatest challenge in teacher preparation programs, then, seems to be to instill in teachers the ability to see the potentialities of the children they teach. Teachers must have their feet on the ground and their heads in the clouds—and be able to program their children for the distance between.

Teaching Techniques for Institutionalized Blind Retarded Children

As I have talked with people at conferences, I have become more and more aware of special programs planned to discover what can be done with blind children functioning on a retarded level under optimal conditions. This is certainly an important area of concern, but there is neither staff nor money to extend such optimal conditions to all blind retarded children. In contrast to other programs, the program I am going to describe demonstrates what can be done when conditions are less than optimal.

The Plymouth State Home and Training School, serving Wayne County-Detroit, is one of seven institutions in Michigan for the mentally retarded. The program for blind retarded children, however, serves the entire state as no single state home would have enough of these children to justify its having a special program. The Plymouth State Home has 1,250 residents in eight different buildings, including the program for the blind which serves 110 residents in one of these buildings. The program has no particular age limits but, as it is a new program, the children are relatively young. The youngest child is three, although ages do run through the teen years and include two adults. Wherever possible we have placed children back in their own homes or in foster homes where suitable community programs are available. We have tried to place in sighted programs those legally blind children who function more like sighted than like blind individuals, particularly if there is limited potential for academic education. We have found that such children will often imitate the mannerisms of the other blind children, but that when they are placed with sighted children they tend to develop more normal movements and patterns.

The program directors of the seven programs and the director of the infirmary unit work together to make the best placement for each resident. We feel we are very flexible and are able to offer trial periods in different living units to determine the best placement for each person.

□ In the program for the blind the residents are divided by age and ability into four sub-programs. Briefly, there is one group representing the largest number of multiply handicapped children, which includes a wide range of motor disabilities. Our major goals for "graduation" from this group to a more advanced group are self-feeding and independent ambulation. Other areas which receive particular attention are language stimulation and beginning language development, toilet training, development of socialization if it does not already exist, and training in motor coordination. The next level consists of children ranging from about four to 12 years of age. This group also includes a complete range of abilities from very severely

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The programs at the Plymouth facility

Blind Retarded Residents Divided Into Four Groups

retarded to borderline. The goal here is to develop abilities in all areas equal to a blind kindergarten child although not all children can reach this level.

When a child reaches his teen years, he moves to one of two additional groups. If he has developed speech, good self-care skills, and can benefit from either continued academic training or pre-vocational training he moves to one group. Here the goal is some kind of vocational placement in either a sheltered or independent work situation and complete self-care. Our greatest shortcoming at this point is in mobility training. If he has no speech, echolalia only, or speech limited to "yes," "no," and perhaps two or three other words; and he has no potential for real academic training or enough ability in following directions to be employable even in a sheltered situation, he moves to a different group. This second group concentrates on helping to socialize the residents. As these young adults are neither verbal nor sighted, there is very little opportunity for them to really enjoy one another. Since communication is so one-sided it is limited largely to one resident with one adult. We concentrate on the socialization of the residents in order to get adults—attendants, parents, volunteers, and university students—who will want to visit with them. The children are trained in keeping their clothes on, not masturbating in front of people, staying neat and clean, knowing their names, and following simple directions. We are responsible for our residents 24 hours a day and we can fulfill our obligations to them only if we concentrate on every aspect of development.

□ Professional staff consists of two teachers and one speech therapist who are assigned full-time to the program. There are also services from the psychology, medical, social work, adjunctive therapy, and activity therapy departments. Not only can these professional people not possibly reach every child directly, but many of the residents are not at a point where they need the kind of academic training that only a teacher can really provide. The answer must lie with the attendants. We have 50 attendants for duty around the clock, seven days a week. Allowing for illness and vacation, our average ratio is one attendant to nine residents. In-service training is provided to all attendants to show them how to turn all interactions with the residents into teaching situations. In watching the attendants with the residents, it soon became obvious that a few had a natural aptitude for this. In an effort to make the best use of available talents for the benefit of the residents, three attendants were selected to become attendant teachers.

The teachers and speech therapists work closely with the attendants picking groups of children, planning goals, and selecting teaching techniques. The attendants vary widely from one wing to another, as do the residents themselves. With the group in which work placement is a goal, a workshop training program was set up to supplement academic training. The residents learn to make a concentrated effort on a single task over a long period of time, to be accurate in doing the work and in keeping count of production (which is a practical application of the number work they have had in school), to follow directions, and to achieve the necessary interactional skills and other understanding needed for work placement. When residents

Teenagers in two groups

Staff and Attendants Work in Close Cooperation

reach the required production level over a long and stable period of time, they are referred to the Division of Services for the Blind for placement in a workshop. We presently have two residents earning weekly paychecks and five more who are close to this point.

Among the group of children aged four to 12, there is a broad range of abilities. Some of the children are being prepared to return to the community; for these, academic learning is emphasized. The balance of the children are not yet ready for an academic program because of a lack of intellectual readiness or unmanageability in a structured situation. It is to this group that another of our attendant teacher's attention is directed.

With the youngest children, the attendant teachers concentrate on language stimulation and work closely with the speech therapist. Through this use of attendant teachers we are able to provide structured learning situations for approximately 30 children who would otherwise know only the relative chaos of institutional life.

A second teaching technique is aimed at motivating the children to learn. A few of our children, particularly the younger ones, are motivated by social approval, as normal children are. For many of our young children, however, total passivity has become a way of life. These children have been treated as objects to be taken care of and they have withdrawn into their own little worlds. Their activity is often limited to auto-erotic activities or self-abusive behavior; they do not enjoy human interaction at even the most basic level—physical contact. Before social approval and reward can be used with these children, they must learn to want it.

An 18-month-old boy came into our program a year and a half ago. He wanted to spend the day lying in bed, rocking and crooning to himself. If he was picked up, he cried. To combat this I asked the staff to hold him as much as they possibly could, even if he cried and did not like it. After about a month, he began to learn that it was nice to be held, to be played with, to be loved, and he began to enjoy it. This little boy is now feeding himself, his weight has stabilized, and we expect that he will be walking within the year. He is in the process of toilet training and doing well enough that he is in training pants. He has a small speaking vocabulary as well as a fairly large receptive vocabulary. He had to learn about personal contact and social approval before these could be used in motivating him to learn other things.

□ The residents who entered the program as teen-agers presented a different type of problem. All had been in one or more community programs; some had been in one or more foster homes; all had failed a number of times. They knew themselves to be failures; they knew their parents knew them to be failures. They were very uncooperative when we asked them to do things, whether it was getting dressed, making their own beds, or learning things in school. To them, adults and learning were associated only with failure and unhappiness. These residents could only be motivated by something totally unemotional, so we started a token system.

Individual goals were set for each resident, the accomplishment of which

Language and speech emphasized

Passive children difficult to motivate

An example of motivating a passive child

Motivation Using the Token System

would earn him tokens. A token store was set up and stocked with food, radio batteries, cosmetics, jewelry, and anything else that might be of interest. Access to the television room was also made dependent on tokens. The residents were then told about the token system, how they could earn tokens, and how the tokens could be used. Nothing more was said and no one acted as if he cared whether any of the residents earned tokens or not.

One by one the residents learned the disadvantages of being without tokens and began to do the things needed to earn them. As their proficiency increased the staff would let them know that they were very proud of the ability they were showing. Slowly their failure images of themselves were replaced by success images and higher self-esteem. We found we could say, "You're making your bed so well now that you don't need tokens for it anymore. Now, in order to get tokens, after you make your bed, you can make the bed of someone who cannot do it." This was accepted, and we have found that once learned, the skills were continued without the need for tokens, while the residents would do more difficult things in order to earn them. In addition, as the residents started feeling better about themselves, they started feeling better about the staff and, in many cases, the social rewards began working all by themselves. We have continued the token system, however, because it has proved very useful in school, in workshop training, and in self-care skills that are especially difficult to learn.

What is taught must make sense to the person who is learning. At the lowest level, this means that if you want the child to learn to walk you will have more success when he also can see that it makes sense. For example, if a passive child is suddenly picked up and told, "Let's practice walking," our experience has been that he won't be much interested. If he can smell food in the dining room, however, and then is told, "It's time for lunch. Let's walk to the dining room," chances are much greater that he will put his feet down and really work at it. This is particularly so if it is emphasized that that is the only way he is going to get there.

□ In academics, if we are trying to prepare a child for a public school program, we work in all the traditional areas, including the reading and writing of braille. For those who are already in their teens, however, and who have not learned braille, I feel that teaching braille is not a very useful expenditure of time. I have encountered many children who could read braille well, but who could not understand what they were reading. The time and energy necessary to teach braille in such cases can be better spent on learning comprehension, on number work and how to count production in a sheltered workshop, on money and how to spend and save it, on following directions. I feel that we must look at the life a student will most likely lead and try to prepare him for that life, rather than to try to prepare him in a traditional manner for life as we know it.

Token system found to be quite successful

Realistic Goals Are Sought for Each Individual



■ Part of the national headquarters of the Council for Exceptional Children moved to Jefferson Plaza, Arlington, Virginia, this fall. Housed in the new location are the CEC Information Center, other special projects, publications, and the Legislative Unit. The executive secretary, William Geer, has offices at both locations.

The mailing address for all CEC correspondence, unless specifically stated otherwise, remains 1201 16th Street, N.W., Washington, D.C. 20036.

■ Robert Humbert has been appointed supervisor of individual and group services at the Chicago Lighthouse for the Blind. Previously, Mr. Humbert served as intake and evaluation supervisor for Community Services for the Blind, Atlanta, and as a rehabilitation counselor for the Division of Vocational Rehabilitation in Illinois.

■ *Touch Communication*, a 20-page pamphlet by Dr. Richard Kinney, has been published by the Hadley School for the Blind. Originally a part of Dr. Kinney's textbook, *Independent Living Without Sight and Hearing*, the present extract is a concise presentation of the methods of communication with deaf-blind persons. The author, who is deaf and blind himself, is the executive vice-president of the Hadley School.

Touch Communication is available without charge in both print and braille from the Hadley School for the Blind, 700 Elm Street, Winnetka, Illinois 60093.

The new Hadley School *General Information Bulletin*, listing the school's more than 100 free, accredited correspondence courses for blind persons, is also available in both print and braille.

■ The Children's Bureau of the U.S. Department of Health, Education, and Welfare has been moved from the Social and Rehabilitation Service to the Office of the Secretary where it becomes part of the new Office of Child Development.

Location of the Children's Bureau in the Office of Child Development completes the formal organization of the Office, which was officially established in July. The other parts of the new Office are the Bureau of Head Start and Child Development and the Bureau of Program Development and Resources.

The Office of Child Development reports to the Secretary through Assistant Secretary for Administration James Farmer.

■ Dr. Allan L. Ward has replaced Mr. J. O. Murphy as director of research and staff development at the Arkansas Enterprises for the Blind, Little Rock. Mr. Murphy has retired after 28 years in the field of rehabilitation.

■ Robert Heaton has replaced Elinor B. Ring as director of the Pilot School for Blind Children, Inc., Washington, D.C.

■ The Florida Council for the Blind is now the Department of Health and Rehabilitative Services, Division of Vocational Rehabilitation, Bureau of Blind Services. The address, 200 East Gaines Street, Tallahassee, Florida 32301, is unchanged.

■ The Ohio Lions Eye Research Foundation has awarded a grant of \$31,000 to the University of Cincinnati Medical Center. Lions gifts to the University of Cincinnati now total \$141,000. This latest gift will support the University Eye Pathology Laboratory, located at Cincinnati General Hospital, and finance a fundus camera for fluorescein photography.

■ A group in Florida headed by Vincent Burke of North Miami Beach is trying to organize a Florida affiliate of the National Federation of the Blind. Membership would be open to all adult blind persons who are permanent residents of Florida. Those interested in this effort may write to the Friends of the NFB, 15775 N.E. 13th Avenue, North Miami Beach, Florida 33162.

■ *Motel Guide for the Disabled*, published by the International Society for Rehabilitation of the Disabled, is a pamphlet listing facts about the physical layout of motels along European highways E1 (London to Palermo) and E4 (Lisbon to Helsinki). The I.S.R.D. also publishes similar guides for major European cities. *Motel Guide for the Disabled* is available from the I.S.R.D. Information Centre, 219 East 44th Street, New York, N.Y. 10017. The price is 50 cents.

■ A film called "To Help Themselves" which explains special telephone products for handicapped persons, has just been released by the Illinois Bell Telephone Company.

For more information, write Telebriefs, Box HT, 30D, 225 West Randolph, Chicago, Illinois 60606.

■ Gerard J. De Angelis has been appointed director of services of the Columbia Lighthouse for the Blind. Prior to accepting this position, Mr. De Angelis served as community consultant to the professional staff of the Metropolitan Society for the Blind, Detroit.

In his new position, Mr. De Angelis will coordinate all service areas—rehabilitation, community, and children's services within the Lighthouse and with other community agencies.

■ Maurice Chevalier has become a national sponsor of the Hadley School for the Blind, Winnetka, Illinois. His interest in the Hadley school grew out of a visit which he made recently to its Paris branch offices.

■ The Alameda County (Calif.) School Department has produced a 13-minute, 16mm, color, sound film entitled *Bus Travel*. It depicts the orientation and mobility skills needed by blind persons who want to use public transportation. Intended primarily as a teacher-training film, it should also be useful to classroom teachers, school administrators, parents, and the general public. The film is available for purchase at \$120 from the Alameda County School Department, 224 West Winton Street, Hayward, California 94544.

■ A tactile vision substitution system is the subject of a new documentary film, *Blind People Begin To See*. This 20-minute, 16mm, black and white, sound film presents the results of the work of Drs. Paul Bach-y-Rita and Carter Collins of the Smith-Kettlewell Institute of Visual Sciences, Pacific Medical Center, San Francisco, California.

The principle utilized in this system is that instead of optic nerves sensory nerves can be used to carry visual information to the brain. A television camera is used as an eye and the picture is transmitted to a vibrator matrix which in turn "taps" the image onto the skin. After a few hours of training, the brain gradually begins to interpret the vibration as a pictorial image.

Information regarding *Blind People Begin To See* is available from the producers, Matti Kaje and Pekka Niemelä, 583 Colusa Avenue, Berkeley, California 94707.

■ A set of wireless headphones for use with classroom or learning table induction loops, and a companion loop wiring kit, have been introduced by 3/M Wol-lensak. The cable and mounting accessories can be installed without tools or professional labor.

Further information is available from 3M Company, 3M Center, St. Paul, Minn. 55101.

■ Standards for the production of reading materials in braille or other tactile form, in recorded form, and in large type are being developed by the National Accreditation Council for Agencies Serving the Blind and Visually Handicapped.

Draft standards will be submitted for review to a large group of knowledgeable persons and will then be discussed at a national conference of leaders in the field before adoption by NAC's Commission on Standards.

■ The Social Security Administration will now accept letters in braille and will send replies in braille when requested to do so.

■ A device to aid blind persons to become switchboard operators has been developed by the Bell Telephone System. Called the "Seeing Aid," the new device alerts the blind operator to incoming calls through a buzzing sound. With a light-sensitive probe, the operator scans the board to locate the light telling the correct row of jacks.

When the light has been located, the operator will hear a tone in the headset. After the probe has been run along the correct row of jacks, another tone will sound in the headset indicating that the correct jack has been located.

■ Harold Russell, chairman of the President's Committee on Employment of the Handicapped, has announced the appointment of Rex Taylor as chairman of the Public Information Committee. Mr. Taylor, vice-president and director of public relations for FAS International, Inc., will help guide the nationwide hire-the-handicapped campaign.

■ The American Printing House for the Blind has instituted two new services. The first is an expansion of the APH's Central Catalog of volunteer-produced textbooks. The catalog lists braille transcriptions and large-type and recorded books. Arrangements are now being made for volunteer agencies to put their braille paper masters on permanent deposit with the APH. This will make it possible to supply thermoform braille books on quota account. Volunteer agencies are invited to put their paper masters on permanent deposit.

The second service deals with the need for small numbers of copies of large-type text books. These will now be available in short runs of from one to 25 copies. The process used permits a maximum blowup of one-and-a-half times original page size, up to a maximum page size of 11½ x 18 inches.

Persons wishing a catalog of the braille master file, with a schedule of prices for thermoform copies and further details, should write to the American Printing House for the Blind, 1839 Frankfort Avenue, Louisville, Ky. 40206. Persons wishing to submit books for reproduction (on a quota account, accounts receivable, or cash basis) should send two clean copies to APH at the same Louisville address, specifying how many reproduced copies they desire.

■ The Metropolitan Society for the Blind, Detroit, has produced a 16-minute, color, sound film-strip entitled *When Someone Cannot See*. Intended for use with elementary school-age children, the presentation features Woodrow the Woodsman, Tarkington the owl, Voracious the elephant, and Freddy the "Al-licrock." It explains what blindness means and how blind people learn to do many tasks that sighted people take for granted. Such skills as telling time with a braille watch, pouring liquids, coin identification, mobility, and reading braille are demonstrated.

The sound-track record can be used with either manual or automatic equipment. A slide-tape combination is available to those who do not have film-strip equipment. The Metropolitan Society is making the film-strip available to organizations, agencies, and schools for \$30. Copies may be borrowed or ordered by writing to David C. Beard, Public Education Consultant, Metropolitan Society for the Blind, 1401 Ash Street, Detroit, Michigan 48208.

■ For her influence in bringing many home economists into the work of rehabilitating disabled homemakers, Miss Mary E. Switzer, administrator of the Social and Rehabilitation Service, Department of Health, Education, and Welfare, has been accorded honorary membership in the American Home Economics Association (AHEA).

The award, presented by Dr. A. June Bricker, head of the Department of Extension Home Economics, University of Maryland, and chairman of AHEA's rehabilitation committee, goes annually to people outside the field of home economics who have contributed significantly to the improvement of home and fam-

ily life. In presenting the award, Dr. Bricker paid tribute to Miss Switzer for "accomplishing the recognition of homemaking as a vocation, so that public funds could be used to support our work in rehabilitation."

■ Norma K. Fike has succeeded William Feldman, who retired, as director of the Personnel and Training Service of the American Foundation for the Blind.

Miss Fike, who received B.A. and M.S.W. degrees from Indiana University, most recently served as assistant professor at the Simmons College and Boston University Schools of Social Work where her primary responsibility was supervision of a student training program at the Massachusetts Commission for the Blind.

■ The supervisor's committee of the Eastern Conference of Rehabilitation Teachers has worked out the format for a national institute for supervisors dealing with the problems of administration.

In cooperation with the University of Richmond, Virginia and the federal Rehabilitation Services Administration, the committee is working out plans for holding the institute some time in late winter or early spring, 1970.

The institute will be open to supervisors from the United States and Canada.

■ Andrew J. Bowers has joined the American Foundation for the Blind as specialist in services for multihandicapped persons. This is a newly created position which reflects the Foundation's and the field's increased concern about the service needs of blind persons who have additional impairments.

Mr. Bowers, who most recently served as sheltered workshops coordinator in

the Division of Vocational Rehabilitation, State of Washington, is a graduate of Kenyon College and the University of Buffalo.

■ Dr. Thomas E. Caulfield Jr., chief of the department of psychiatry at the Catholic Guild for All the Blind, Newton, Massachusetts, died October 8 in Brighton, Mass.

Dr. Caulfield, a graduate of Holy Cross College and Harvard Medical School, joined the Catholic Guild in 1954 on a part-time basis as chairman of its psychosocial department. In 1964, he joined the Guild's full-time staff as rehabilitation director and administrator of St. Paul's Rehabilitation Center.

Addition

"A Self-Discovery Venture for Visually Handicapped Children" by Rosalind Wright (Current Literature, *New Outlook*, September 1969) was originally published in the *International Journal for the Education of the Blind*, December 1968. Publication of the article in *The Florida School Herald*, as listed in Current Literature, was as a reprint.

Coming Events

Dec. 5-6 National Assembly for Social Policy and Development, New York, N.Y.

Dec. 10-13 Special Conference on Early Childhood Education, Council for Exceptional Children, New Orleans, La.

Apr. 19-25, 1970 Council for Exceptional Children, 48th Annual International Convention, Chicago, Ill.

June 1-5 World Federation of Occupational Therapists, Fifth International Congress, Zurich, Switzerland.

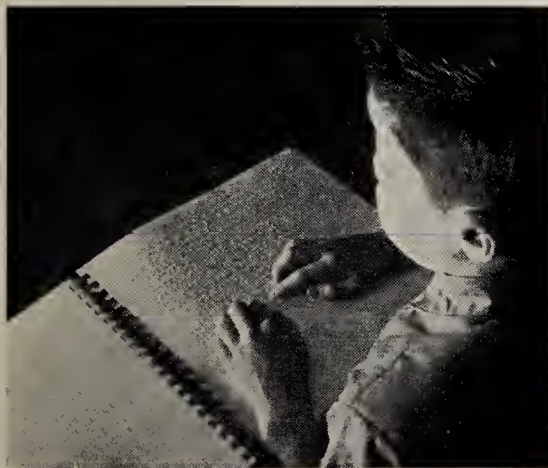


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THE NEW OUTLOOK FOR THE BLIND

VOLUME LXIII, 1969

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